

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY A PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM THE CITY OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, OR UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
6. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
7. BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
8. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
9. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.

EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
3. THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.

LEGEND

CL
 CMU
 DIA.
 EA: E/A
 ELEC. TRANS.
 FI
 FW
 INV
 LS
 MH
 NG
 O/H
 O/H ELEC. (2)
 PVC
 RCP
 RRT
 SAS
 SD
 SI
 TA
 TC
 TCO
 TG
 TW
 TYP.
 U/G ELEC. (3)
 WL

CENTER LINE
 CEMENT MASONRY UNIT
 DIAMETER
 EDGE OF ASPHALT
 ELECTRIC TRANSFORMER
 FLOWLINE
 FLAGSTONE WALK
 INVERT
 LANDSCAPING
 MANHOLE
 NATURAL GRADE
 OVERHEAD
 OVERHEAD ELECTRIC (NO. OF LINES)
 POLY VINYL CHLORIDE
 REINFORCED CLAY PIPE
 RAILROAD TIES
 SANITARY SEWER
 STORM DRAIN
 STORM INLET
 TOP OF ASPHALT
 TOP OF CURB
 TOP OF CONCRETE
 TOP OF GRADE
 TOP OF WALL
 TYPICAL
 UNDERGROUND ELECTRIC (NO. OF LINES)
 WATERLINE

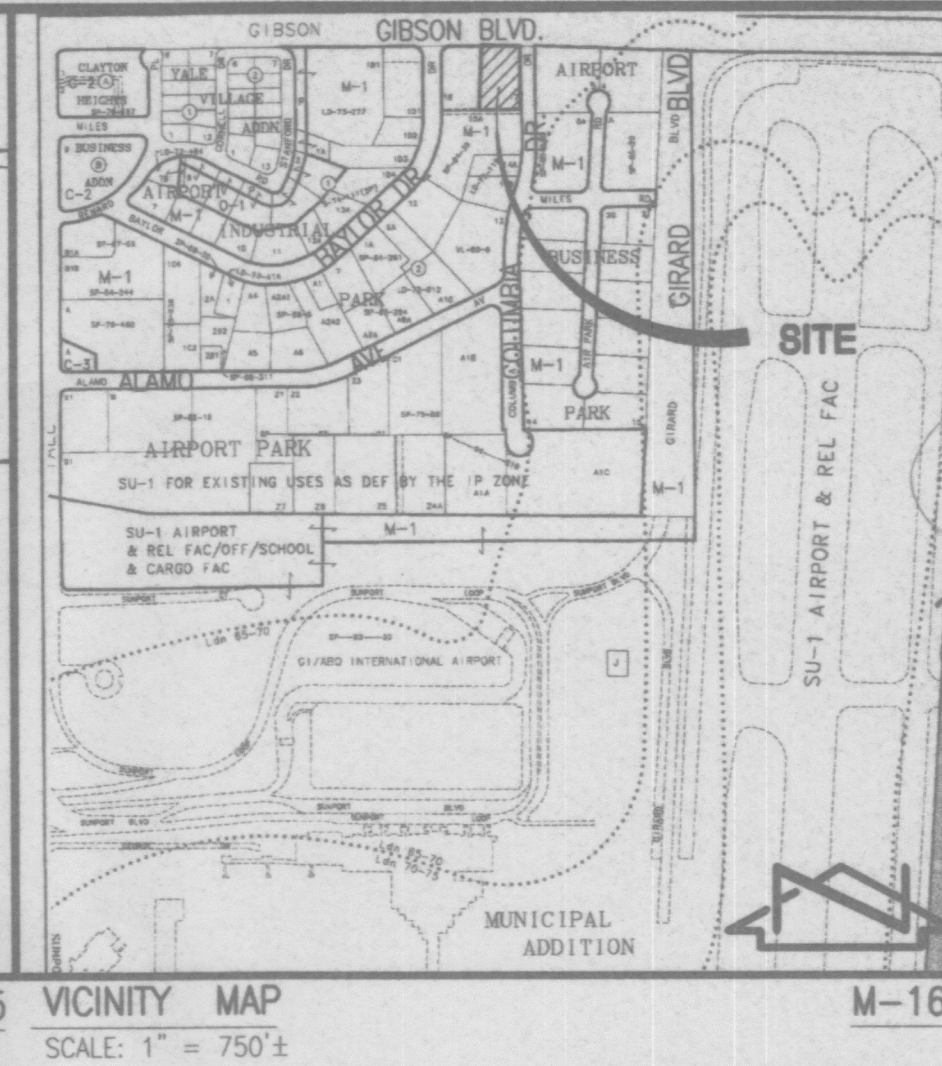
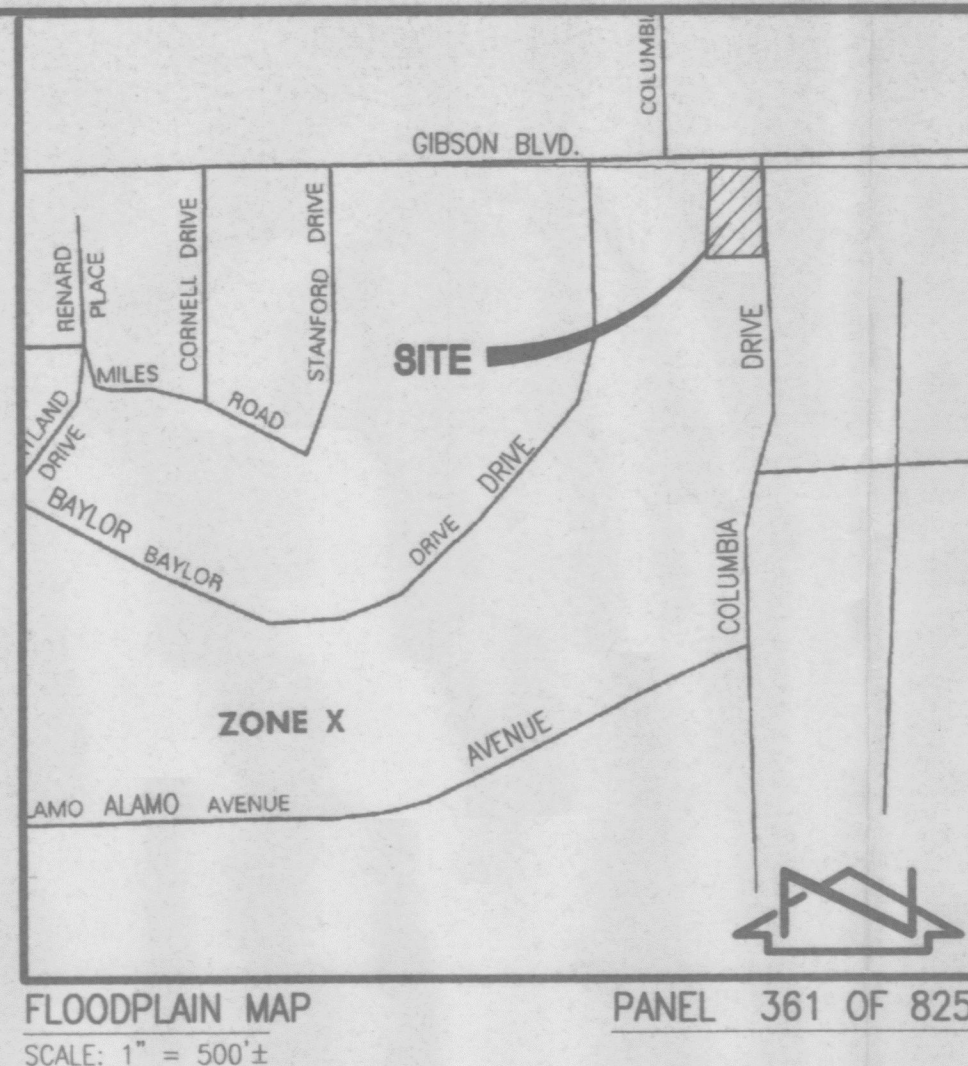
CONIFEROUS TREE
 DECIDUOUS TREE

SMALL DECIDUOUS TREE
 EXISTING CONTOUR
 EXISTING SHRUB LINE
 EXISTING SPOT ELEVATION
 PROPOSED SPOT ELEVATION
 DRAINAGE BASIN BOUNDARY LINE
 DIRECTION OF FLOW
 PROPOSED CONTOUR
 PROPOSED CONCRETE PAVING
 PROPOSED ASPHALT PAVING
 EXISTING ROOF DRAINAGE
 PROPOSED ROOF DRAINAGE
 EXISTING ASPHALT PAVEMENT TO BE REMOVED AND REPLACED

-5270-
 + TA71.96
 TA72.00
 74

KEYED NOTES:

- 1 CONSTRUCT PRIVATE STORM INLET PER TYPICAL SECTION SHEET C-4.
- 2 INSTALL 8" HDPE PRIVATE STORM DRAIN PIPE @ S = 0.0350.
- 3 INSTALL 4" HDPE PRIVATE STORM DRAIN PIPE @ S = 0.0295.
- 4 INSTALL 12" HDPE PRIVATE STORM DRAIN PIPE @ S = 0.0059.
- 5 INSTALL 10" PVC PRIVATE STORM DRAIN PIPE @ S = 0.0074.
- 6 INSTALL 1-12" 45° ELL AND CONCRETE BLOCKING.
- 7 CONSTRUCT DRAIN LINE CONNECTION TO EXISTING PUBLIC STORM INLET PER C.O.A. STD. DWG. 2237.
- 8 REMOVE AND DISPOSE OF EXISTING CONCRETE INLET STRUCTURE.
- 9 NEATLY SAWCUT, REMOVE, DISPOSE OF AND REPLACE EXISTING ASPHALT PAVING PER C.O.A. STD. DWG. 2465 AS NECESSARY TO FACILITATE PRIVATE STORM DRAIN TRENCHING. ULTIMATE TRENCH WIDTH SHALL BE DETERMINED BY SOIL CHARACTERISTICS AND OSHA REQUIREMENTS.
- 10 NEATLY REMOVE AND REPLACE EXISTING FLAGSTONE SIDEWALK AND BRICK LANDSCAPING AS NECESSARY TO FACILITATE PRIVATE STORM DRAIN TRENCHING.
- 11 NEATLY SAWCUT, REMOVE, DISPOSE OF AND REPLACE EXISTING CONCRETE PAVING PER C.O.A. STD. DWG. 2465; CONSTRUCT DRAIN LINE CONNECTION TO EXISTING PRIVATE STORM INLET PER C.O.A. STD. DWG. 2237.
- 12 INSTALL 1-10" 45° ELL AND CONCRETE BLOCKING.
- 13 INSTALL 4" D.I.P. @ S = 0.0480
- 14 SET TOP OF CURB 6" ABOVE CORRESPONDING EXISTING ASPHALT PAVEMENT GRADE.
- 15 REMOVE AND DISPOSE OF EXISTING 45° ELL AND CONNECT NEW 10" PVC PIPE TO EXISTING 10" PVC PRIVATE STORM DRAIN PIPE.



PROJECT BENCHMARK

STATION 6-L16A, IS A SQUARE, 1" CHISELED ON TOP OF A CONCRETE CURB, LOCATED ON THE NORTH SIDE OF GIBSON BOULEVARD, 1215' (±) WEST OF GIRARD BOULEVARD AND 35' (±) EAST OF A DROP INLET.
ELEVATION = 5249.497 FEET (M.S.L.D.)

T.B.M.

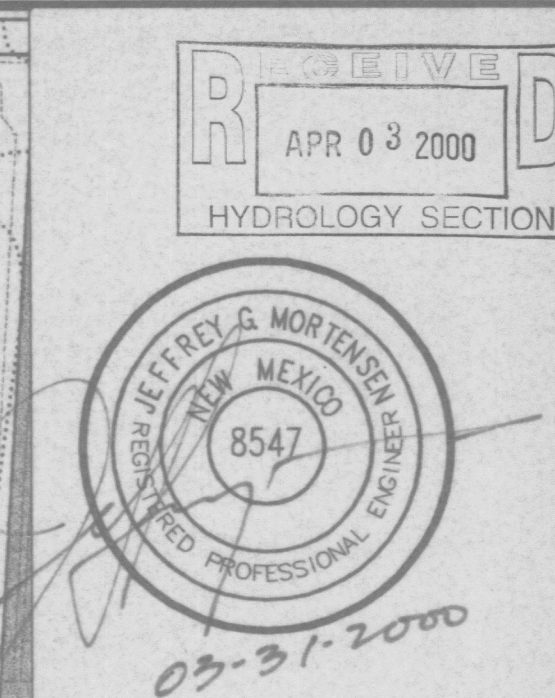
TOP OF # 5 REBAR (NO I.D.) LOCATED NEAR THE S.E. CORNER OF THE
PROPERTY AS SHOWN ON THE DRAWING
ELEVATION=5273.24

LEGAL DESCRIPTION

LOT 17, BLOCK 2, AIRPORT INDUSTRIAL PARK, ALBUQUERQUE,
NEW MEXICO.

NOTES:

1. THIS IS NOT A BOUNDARY SURVEY. A TOPOGRAPHIC SURVEY WAS CONDUCTED BY JEFF MORTENSEN AND ASSOCIATES IN FEBRUARY, 2000. BOUNDARY DATA TAKEN FROM SITE PLAN PREPARED BY JON ANDERSON ARCHITECT, MARCH 2000, IS SHOWN FOR ORIENTATION ONLY.



STAN'S FROZEN FOODS
2101 COLUMBIA DRIVE S.E.

JOHN ANDERSON ARCHITECT AIA, 505-764-8306 FAX 764-2879
912 ROMA AVE NW ALBUQUERQUE NEW MEXICO 87102

3/20/00

C-3

GRADING PLAN

2000.009.2



JEFF MORTENSEN & ASSOCIATES, INC.
☐ 6010-B MIDWAY PARK BLVD. N.E.
☐ ALBUQUERQUE ☐ NEW MEXICO 87109
☐ ENGINEERS ☐ SURVEYORS (505) 345-4250

File Path:	E:\DWG\DWG\2000\0092\	Plot Date:	03-29-2000
File Name:	0092G1.DWG	Plot Time:	3:08 pm

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File Path: E:\WORK\2000\2000092\DWG
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Plot Date: 03-27-2000
Plot Time: 2:12 pm

EXECUTIVE SUMMARY AND INTRODUCTION

THIS PROJECT IS LOCATED IN SOUTHEAST ALBUQUERQUE, JUST NORTH OF THE ALBUQUERQUE SUNPORT AND REPRESENTS THE MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE PREVIOUSLY APPROVED GRADING AND DRAINAGE PLAN FOR THE MOST RECENTLY CONSTRUCTED BUILDING ADDITION ON THE SITE ESTABLISHES FREE DISCHARGE OF DEVELOPED RUNOFF FROM THE SITE AND WAS PREPARED BY FRANK LOVELADY, OCTOBER 1991. THEREFORE, THIS PLAN PROPOSES DISCHARGE OF DEVELOPED RUNOFF FROM THE SITE DIRECTLY INTO A PUBLIC STORM INLET WITHIN GIBSON BLVD. S.E. AND INTO A PUBLIC STORM INLET WITHIN COLUMBIA DRIVE VIA PRIVATE STORM DRAIN PIPES. OFFSITE FLOWS GENERATED BY A SMALL BASIN LOCATED EAST OF THE SITE BETWEEN THE SITE AND THE COLUMBIA DRIVE S.E. ROADWAY IMPACT THE SITE AND WILL BE ACCEPTED AND CONVEYED THROUGHOUT THE SITE.

THIS SUBMITTAL IS MADE IN SUPPORT OF A BUILDING PERMIT FOR THE PROPOSED BUILDING ADDITIONS AND SO-19 APPROVAL FOR THE PRIVATE STORM DRAIN CONNECTION TO THE PUBLIC STORM INLET WITHIN GIBSON BLVD. S.E.

PROJECT DESCRIPTION

AS SHOWN ON THE VICINITY MAP, THE SITE IS LOCATED ON COLUMBIA DRIVE, JUST SOUTH OF GIBSON BLVD. S.E. AS SHOWN BY PANEL 361 OF 825, THE SITE DOES NOT LIE WITHIN NOR NEGATIVELY IMPACT A DESIGNATED FLOOD HAZARD ZONE (ZONE 'A').

BACKGROUND DOCUMENTS

THE FOLLOWING DOCUMENTS WERE USED IN THE PREPARATION OF THIS PLAN:

1) DRAINAGE REPORT FOR GIBSON BOULEVARD, RECONSTRUCTION/REHABILITATION, UNIVERSITY BOULEVARD TO JACKSON STREET, PREPARED BY AWD ENGINEERING, INC., AUGUST 1995. THIS PLAN ALLOWS DISCHARGE OF FULLY DEVELOPED RUNOFF FROM BASIN G-17, WHICH INCLUDES THE PROJECT SITE, INTO GIBSON BLVD. S.E.

2) GRADING AND DRAINAGE PLAN, NEW BUILDING ADDITION FOR STAN'S FROZEN FOODS. THIS PREVIOUSLY APPROVED DRAINAGE PLAN FOR THE PROJECT SITE UTILIZES FREE DISCHARGE OF DEVELOPED RUNOFF FROM THE SITE INTO GIBSON BLVD. S.E.

EXISTING CONDITIONS

AT PRESENT, THE SITE IS DEVELOPED. THE SITE CONTAINS A FREESTANDING BUILDING, ASPHALT PAVED PARKING LOTS AND LANDSCAPED AREAS. CURRENTLY, RUNOFF GENERATED BY THE SITE IS DIRECTED TO THE NORTHWEST CORNER OF THE SITE WHERE AN EXISTING PRIVATE STORM INLET IS LOCATED. THE PRIVATE STORM INLET DISCHARGES INTO AN EXISTING SIDEWALK CULVERT WHICH DIRECTS RUNOFF DIRECTLY INTO GIBSON BLVD. S.E. TWO SUB-BASINS DEFINE THE SITE'S DRAINAGE PATTERNS IN THE EXISTING CONDITION. RUNOFF GENERATED BY THE SOUTH PORTION OF THE SITE (SUB-BASIN A-2) ENTERS A PRIVATE STORM DRAIN PIPE NEAR THE SOUTHWEST CORNER OF THE SITE WHICH DISCHARGES INTO THE ABOVE MENTIONED EXISTING PRIVATE STORM INLET. MOST OF THE REMAINING PORTION OF THE SITE (SUB-BASIN A-1) DISCHARGES RUNOFF INTO THE EXISTING PRIVATE STORM INLET VIA SURFACE FLOWS. THE EXISTING LOADING DOCK AREA DRAINS INTO AN ADDITIONAL PRIVATE STORM INLET WHICH DISCHARGES TO AN UNDERGROUND FRENCH DRAIN SYSTEM LOCATED SOUTH OF THE EXISTING BUILDING UTILIZING A PRIVATE STORM DRAIN PIPE RUNNING UNDER THE EXISTING BUILDING. AGAIN, OFFSITE FLOWS ORIGINATING EAST OF THE SITE WITHIN THE AREA BETWEEN THE SITE AND WEST CURB OF COLUMBIA DRIVE S.E. AT THE EAST CENTRAL PORTION OF THE SITE IMPACT THE SITE. THESE FLOWS ARE ACCEPTED AND CONVEYED THROUGHOUT THE SITE. OFFSITE FLOWS GENERATED BY THE COLUMBIA DRIVE ROADWAY ARE CONFINED TO THE STREET AND DO NOT IMPACT THE SITE.

PUBLIC STORM DRAIN FACILITIES EXIST IN BOTH GIBSON BLVD. S.E. AND COLUMBIA DRIVE S.E. A 30" PUBLIC STORM DRAIN IS LOCATED JUST SOUTH OF THE SITE WITHIN THE EXISTING STORM SEWER EASEMENT. THIS STORM DRAIN SYSTEM CROSSES COLUMBIA DRIVE AND DIVERTS FLOWS TOWARD THE WEST AND EVENTUALLY OUTFALLS INTO THE GIBSON STORM DRAIN SYSTEM SEVERAL HUNDRED FEET WEST OF THE SITE. AN EXISTING PUBLIC STORM INLET IS LOCATED SOUTHEAST OF THE SITE AND DISCHARGES INTO THE COLUMBIA DRIVE STORM DRAIN SYSTEM. IN ADDITION, AN EXISTING PUBLIC STORM INLET IS LOCATED WITHIN GIBSON BLVD. JUST NORTH OF THE SITE AND DISCHARGES INTO A 36" PUBLIC STORM DRAIN WITHIN GIBSON BLVD.

DEVELOPED CONDITIONS

THE PROPOSED DEVELOPMENT RESULTS IN THE DIVISION OF THE SITE INTO FOUR DRAINAGE BASINS. A SYSTEM OF PRIVATE STORM INLETS WILL CAPTURE RUNOFF GENERATED IN THE EASTERN AND CENTRAL PORTIONS OF THE SITE (SUB-BASINS A-2 AND A-3). THE STORMWATER WILL THEN BE DIRECTED INTO THE EXISTING PUBLIC STORM INLET WITHIN GIBSON BLVD. LOCATED JUST NORTH OF THE SITE THROUGH THE USE OF A BURIED PRIVATE STORM DRAIN PIPE. ADEQUATE PONDING VOLUME WITHIN THE PROPOSED PARKING LOT AND NEAR THE EXISTING LOADING DOCK HAS BEEN PROVIDED IN THE EVENT THAT THE PRIVATE STORM DRAIN SYSTEM IS RENDERED INOPERABLE. THE PONDING AREAS ARE CAPABLE OF CONTAINING THE 100-YEAR VOLUME OF RUNOFF GENERATED BY THE DRAINAGE BASINS CONTRIBUTING TO THESE AREAS. RUNOFF GENERATED BY THE NORTHERN PORTION OF THE SITE (SUB-BASIN A-1) WILL TRAVEL TO THE NORTHWEST CORNER OF THE SITE VIA SURFACE FLOWS AND WILL BE CAPTURED BY THE EXISTING PRIVATE STORM INLET WHICH DISCHARGES RUNOFF INTO GIBSON BLVD. THROUGH THE EXISTING SIDEWALK CULVERT.

DRAINAGE PLAN

RUNOFF GENERATED BY THE SOUTHWEST PORTION OF THE SITE (SUB-BASIN A-4) WILL BE DIRECTED INTO A PROPOSED DETENTION PONDING AREA WHICH DISCHARGES INTO THE EXISTING PRIVATE STORM DRAIN PIPE RUNNING ALONG THE WEST BOUNDARY AND DISCHARGING INTO GIBSON BLVD. UTILIZING THE EXISTING SIDEWALK CULVERT. THE PEAK DISCHARGE RATE WHICH WILL BE ACCEPTED BY THE EXISTING PRIVATE STORM INLET AND SIDEWALK CULVERT WILL NOT BE INCREASED BY THE PROPOSED DEVELOPMENT. THIS IS DUE TO THE DIVERSION OF FLOWS IN THE EASTERN PORTION OF THE SITE DIRECTLY INTO THE PUBLIC STORM INLET LOCATED WITHIN GIBSON BLVD. S.E.

GRADING PLAN

THE GRADING PLAN SHOWS: 1) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS AS TAKEN FROM THE TOPOGRAPHIC SURVEY PREPARED BY THIS OFFICE, DATED FEBRUARY 2000. 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS. 3) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS. 4) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, AND 5) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. THE GRADING PLAN APPEARS ON SHEET C-3.

CALCULATIONS

THE CALCULATIONS CONTAINED HEREIN ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40-ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY, 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED, AS DEMONSTRATED BY THE DRAINAGE CALCULATIONS CONTAINED HEREON. ONLY A SLIGHT INCREASE IN DEVELOPED RUNOFF WILL BE EXPERIENCED AS A RESULT OF THE PROPOSED BUILDING ADDITIONS. GRATE INLET CAPACITIES AS WELL AS PIPE INLET CAPACITIES WERE ANALYZED USING THE ORIFICE EQUATION. PIPE CAPACITIES WERE ANALYZED USING MANNING'S EQUATION.

CONCLUSION

THE CONTINUED FREE DISCHARGE OF RUNOFF FROM THIS SITE TO GIBSON BLVD. S.E. AND COLUMBIA DRIVE S.E. IS APPROPRIATE DUE TO THE FOLLOWING FACTORS:

- 1) MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA
- 2) NEGLIGIBLE INCREASE IN DEVELOPED RUNOFF
- 3) PROXIMITY TO DOWNSTREAM FACILITIES AND DOWNSTREAM CAPACITY
- 4) CONFORMANCE WITH PREVIOUSLY APPROVED PLANS
- 5) NO IMPACT ON DOWNSTREAM FLOOD HAZARD ZONES. THE STORM DRAIN FACILITIES PROPOSED BY THIS PLAN WILL BE PRIVATELY OWNED, OPERATED AND MAINTAINED.

SITE CHARACTERISTICS

1. PRECIPITATION ZONE = 2
2. $P_{6,100} = P_{360} = 2.35$ IN.
3. TOTAL AREA (A_T) = 41,860 SF/0.96 AC

EXISTING LAND TREATMENT

BASIN A-1 (10,740 SF/0.25 AC)	
TREATMENT AREA (SF/AC) %	
B 1,720/0.04	16
C 7,330/0.17	68
D 1,690/0.04	16

BASIN A-2 (31,120 SF/0.71 AC)	
TREATMENT AREA (SF/AC) %	
B 1,350/0.03	04
C 13,800/0.32	44
D 15,970/0.37	51

OFFSITE BASIN (1,090 SF/0.02 AC)	
TREATMENT AREA (SF/AC) %	
B 450/0.01	41
D 640/0.01	59

DEVELOPED LAND TREATMENT

BASIN A-1 (15,370 SF/0.35 AC)	
TREATMENT AREA (SF/AC) %	
B 1,160/0.03	08
C 300/0.01	02
D 13,910/0.32	90

BASIN A-2 (14,430 SF/0.33 AC)	
TREATMENT AREA (SF/AC) %	
B 2,930/0.07	21
D 11,500/0.26	79

BASIN A-3 (4,420 SF/0.10 AC)	
TREATMENT AREA (SF/AC) %	
B 560/0.01	13
D 3,860/0.09	87

BASIN A-4 (7,640 SF/0.18 AC)	
TREATMENT AREA (SF/AC) %	
C 7,400/0.17	97
D 240/0.01	03

EXISTING CONDITION

A. BASIN A-1

1. VOLUME

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$
$$E_w = [0.78(0.04) + 1.13(0.17) + 2.12(0.04)] / 0.25 = 1.23 \text{ IN.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.23 / 12) 0.25 = 0.0257 \text{ AC.FT.} = 1,120 \text{ CF}$$

2. PEAK DISCHARGE

$$Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$$
$$Q_p = Q_{100} = 2.28(0.04) + 3.14(0.17) + 4.70(0.04) = 0.8 \text{ CFS}$$

B. BASIN A-2

1. VOLUME

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$
$$E_w = [0.78(0.03) + 1.13(0.32) + 2.12(0.37)] / 0.71 = 1.65 \text{ IN.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.65 / 12) 0.71 = 0.0975 \text{ AC.FT.} = 4,240 \text{ CF}$$

2. PEAK DISCHARGE

$$Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$$
$$Q_p = Q_{100} = 2.28(0.03) + 3.14(0.32) + 4.70(0.37) = 2.8 \text{ CFS}$$

C. OFFSITE BASIN

1. VOLUME

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$
$$E_w = [0.78(0.01) + 2.12(0.01)] / 0.02 = 1.45 \text{ IN.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.45 / 12) 0.02 = 0.0024 \text{ AC.FT.} = 110 \text{ CF}$$

2. PEAK DISCHARGE

$$Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$$
$$Q_p = Q_{100} = 2.28(0.01) + 4.70(0.01) = 0.1 \text{ CFS}$$

DEVELOPED CONDITION

A. BASIN A-1

1. VOLUME

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$
$$E_w = [0.78(0.03) + 1.13(0.01) + 2.12(0.32)] / 0.35 = 2.04 \text{ IN.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (2.04 / 12) 0.35 = 0.0594 \text{ AC.FT.} = 2,590 \text{ CF}$$

2. PEAK DISCHARGE

$$Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$$
$$Q_p = Q_{100} = 2.28(0.03) + 3.14(0.01) + 4.70(0.32) = 1.6 \text{ CFS}$$

B. BASIN A-2

1. VOLUME

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$
$$E_w = [0.78(0.07) + 2.12(0.26)] / 0.33 = 1.84 \text{ IN.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.84 / 12) 0.33 = 0.0505 \text{ AC.FT.} = 2,200 \text{ CF}$$

CALCULATIONS

2. PEAK DISCHARGE

$$Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$$
$$Q_p = Q_{100} = 2.28(0.07) + 4.70(0.26) = 1.4 \text{ CFS}$$

3. STORM DRAIN CAPACITIES

a. GRATE CAPACITY

$$Q = CA(2gh)^{1/2} \text{ (ORIFICE EQUATION)}$$

WHERE:

$$C = 0.6$$
$$A = 0.5 \text{ SF } (18" \times 18" \text{ GRATE HALF CLOGGED)}$$
$$g = 32.2 \text{ FT/S}^2$$
$$h = 0.75 \text{ FT}$$

THEN:

$$Q = 2.1 \text{ CFS} > Q_{100} = 1.4 \text{ CFS}$$

b. PIPE INLET CAPACITY (ORIFICE EQUATION)

$$Q = CA(2gh)^{1/2}$$

WHERE:

$$C = 0.6$$
$$A = 0.35 \text{ SF } (8" \text{ PIPE})$$
$$g = 32.2 \text{ FT/S}^2$$
$$h = 1.4 \text{ FT}$$

THEN:

$$Q = 2.0 \text{ CFS} > Q_{100} = 1.4 \text{ CFS}$$

c. PIPE CAPACITY

$$Q = 1.486/n R^{0.67} S^{0.5} A \text{ (MANNING'S EQUATION)}$$

WHERE:

$$n = 0.011$$
$$A = 0.35 \text{ SF}$$
$$P = 2.10 \text{ FT}$$
$$R = A/P = 0.17 \text{ FT}$$
$$S = 0.0350$$

THEN:

$$Q = 2.7 \text{ CFS} > Q_{100} = 1.4 \text{ CFS}$$

4. POND VOLUME

$$\text{ELEV AREA (SF) VOL (CF) } \geq \text{VOL}$$

71.1	0	1,890	1,890
71.9	4,730		
$V_{\text{POND}} = 1,890 \text{ CF} < V_{100} = 2,200 \text{ CF}$			

THE DIFFERENCE, 310 CF, WILL BE ACCEPTED BY THE PONDING AREA IN BASIN A-3

C. BASIN A-3

1. VOLUME

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$
$$E_w = [0.78(0.01) + 2.12(0.09)] / 0.10 = 1.99 \text{ IN.}$$
$$V_{100} = (E_w / 12) A_T$$
$$V_{100} = (1.99 / 12) 0.10 = 0.0166 \text{ AC.FT.} = 720 \text{ CF}$$

2. PEAK DISCHARGE

$$Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$$
$$Q_p = Q_{100} = 2.28(0.01) + 4.70(0.09) = 0.4 \text{ CFS}$$

3. STORM DRAIN CAPACITIES

a. GRATE CAPACITY (NEW INLET NEAR LOADING DOCK)

$$Q = CA(2gh)^{1/2} \text{ (ORIFICE EQUATION)}$$

WHERE:

$$C = 0.6$$
$$A = 0.5 \text{ SF}$$
$$g = 32.2 \text{ FT/S}^2$$
$$h = 2.2 \text{ FT}$$

THEN:

$$Q = 3.6 \text{ CFS} > Q_{100} = 0.4 \text{ CFS}$$

b. PIPE INLET CAPACITY (NEW INLET NEAR LOADING DOCK)

$$Q = CA(2gh)^{1/2}$$

WHERE:

$$C = 0.6$$
$$A = 0.09 \text{ SF } (4" \text{ PIPE})$$
$$g = 32.2 \text{ FT/S}^2$$
$$h = 1.4 \text{ FT}$$

THEN:

$$Q = 0.6 \text{ CFS} > Q_{100} = 0.4 \text{ CFS}$$

c. PIPE CAPACITIES

$$Q = 1.486/n R^{0.67} S^{0.5} A \text{ (MANNING'S EQUATION)}$$

1. PIPE #3

WHERE:

$$n = 0.011$$
$$A = 0.09 \text{ SF } (4" \text{ PIPE})$$
$$P = 1.04 \text{ FT}$$
$$R = A/P = 0.09 \text{ FT}$$
$$S = 0.0295$$

THEN:

$$Q = 0.4 \text{ CFS} = Q_{100} = 0.4 \text{ CFS}$$

2. PIPE #4

WHERE:

$$n = 0.011$$
$$A = 0.79 \text{ SF } (12" \text{ PIPE})$$
$$P = 3.14 \text{ FT}$$
$$R = A/P = 0.25 \text{ FT}$$
$$S = 0.0059$$

THEN:

$$Q = 3.2 \text{ CFS} > Q_{100} = 0.4 \text{ CFS}$$

3. PIPE #13

WHERE:

$$n = 0.013$$
$$A = 0.09 \text{ SF } (4" \text{ PIPE})$$
$$P = 1.04 \text{ FT}$$
$$R = A/P = 0.09 \text{ FT}$$
$$S = 0.0480$$

THEN:

$$Q = 0.4 \text{ CFS} = Q_{100} = 0.4 \text{ CFS}$$

4. POND VOLUME

$$\text{ELEV AREA (SF) VOL (CF) } \geq \text{VOL}$$

68.0	50	290	
69.0	530	660	950
70.0	790	930	1880
71.0	1060	430	2310
71.4	1080		

$$V_{\text{POND}} = 2310 \text{ CF} > V_{100} \text{ A-3}$$
$$= 720 + V_{100} \text{ A-2 (OVERFLOW)} = 310 = 1030 \text{ CF}$$

D. BASIN A-4

1. VOLUME

$$E_w = (E_A A_A + E_B A_B + E_C A_C + E_D A_D) / A_T$$

$$E_w = [1.13(0.17) + 2.12(0.01)] / 0.18 = 1.19 \text{ IN.}$$

$$V_{100} = (E_w / 12) A_T$$

$$V_{100} = (1.19 / 12) 0.18 = 0.0178 \text{ AC.FT.} = 770 \text{ CF}$$

2. PEAK DISCHARGE

$$Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D$$

$$Q_p = Q_{100} = 3.14(0.17) + 4.70(0.01) = 0.6 \text{ CFS}$$

3. POND VOLUME

$$\text{ELEV AREA (SF) VOL (CF) } \geq \text{VOL (CF)}$$

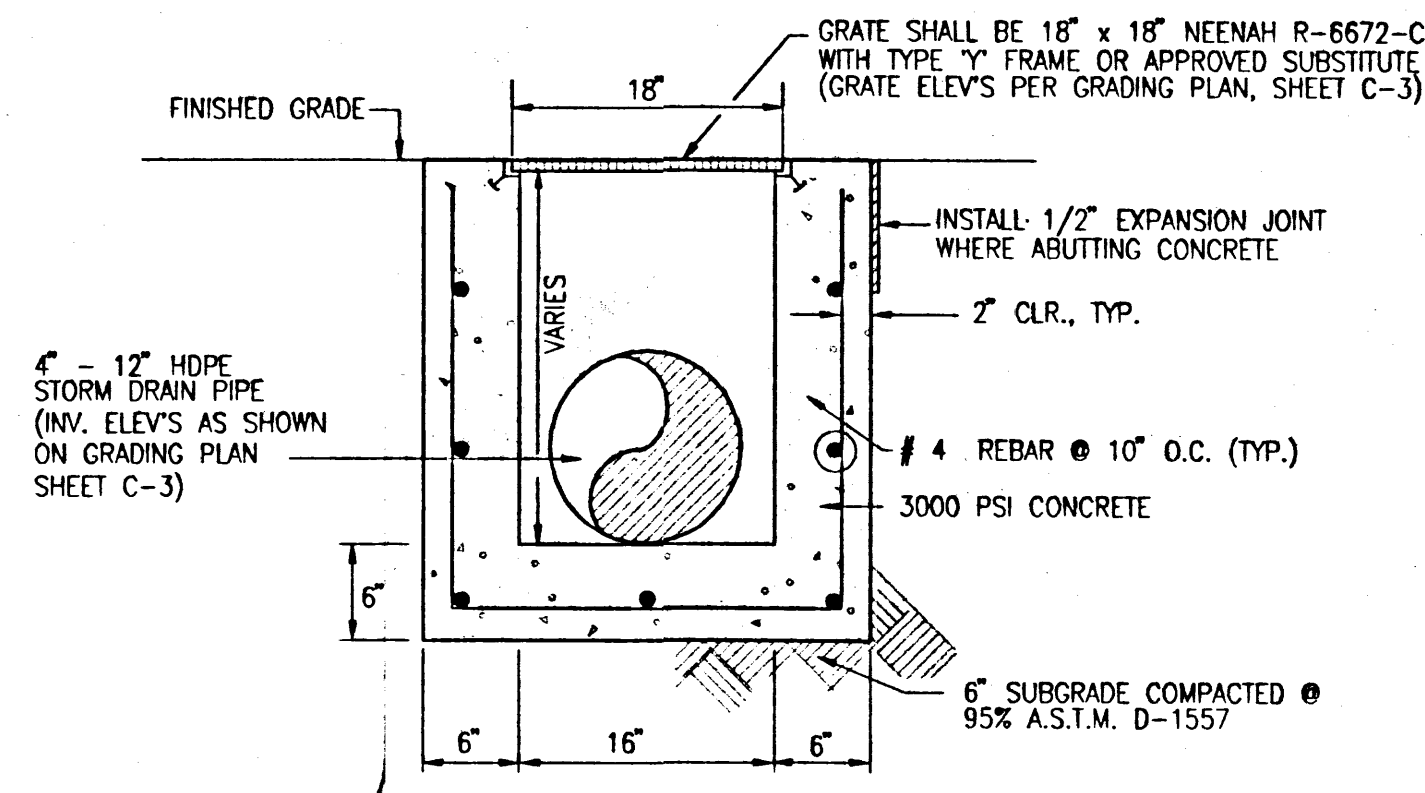
67.0	550	750	750
68.0	950	540	1290
68.5	1200		

$$V_{\text{POND}} = 1290 \text{ CF} > V_{100} = 770 \text{ CF}$$

COMPARISON

$$\Delta V_{100} = (2590 + 2200 + 720 + 770) - (1120 + 4240) = 920 \text{ CF (INCREASE)}$$

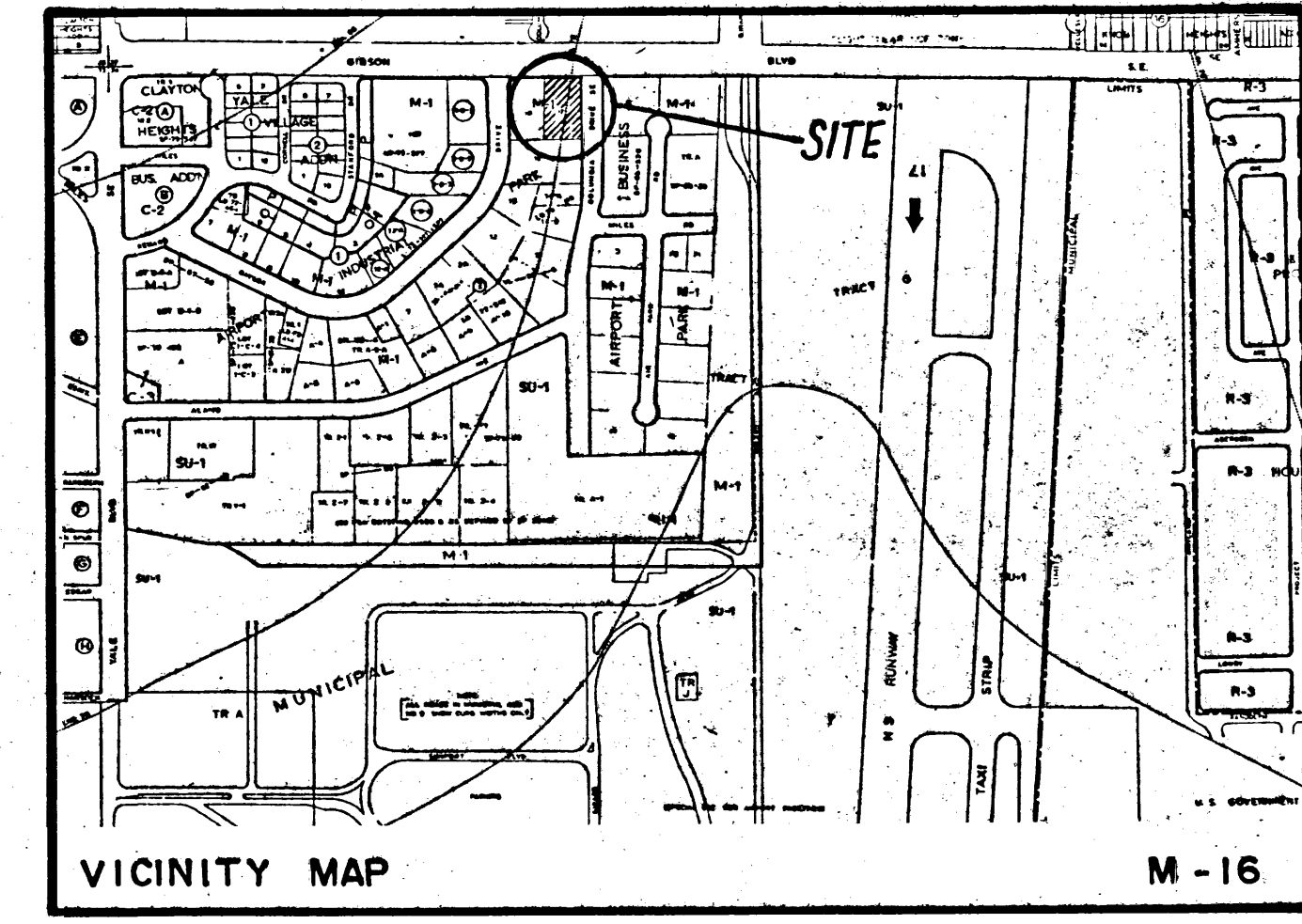
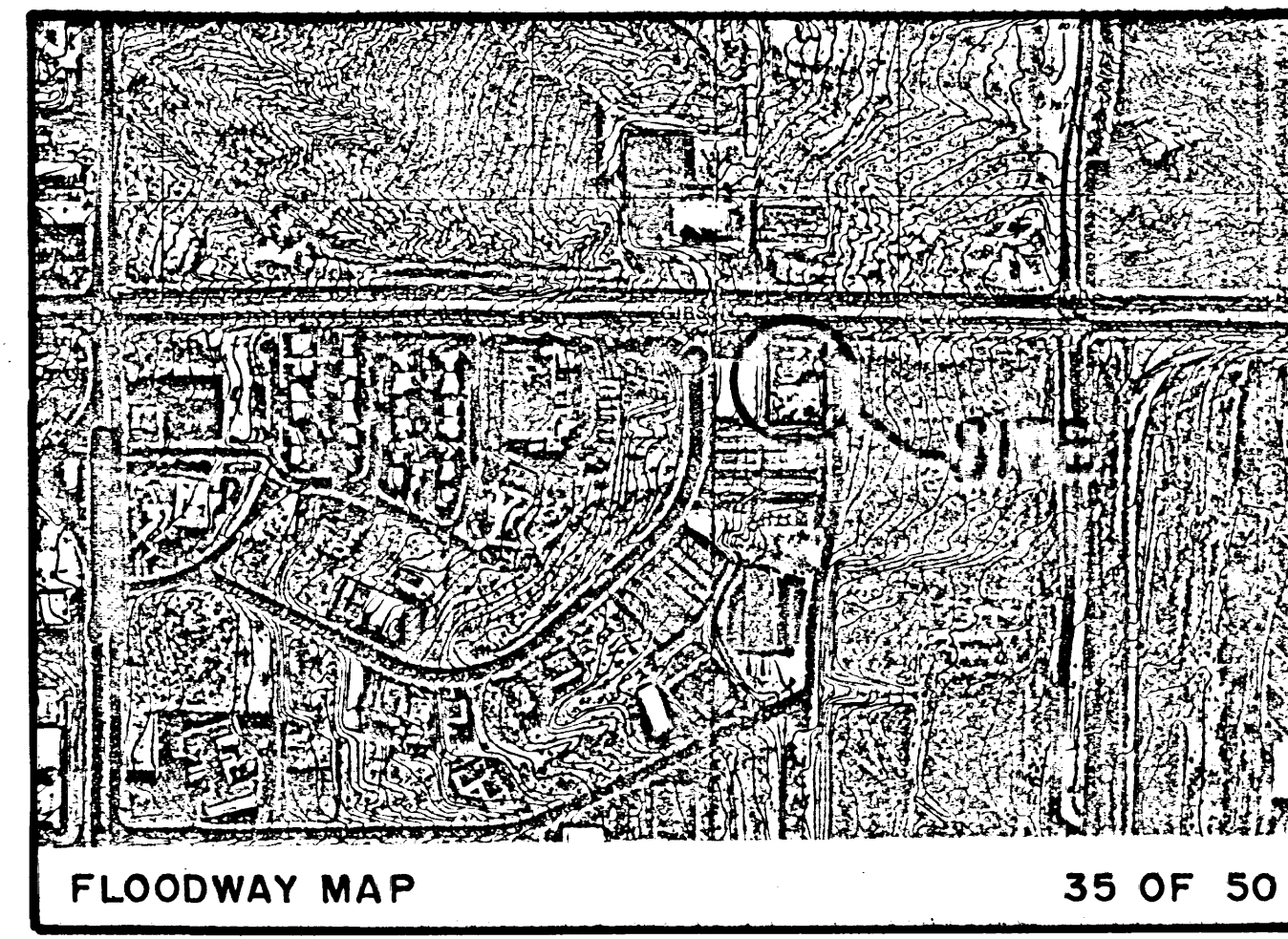
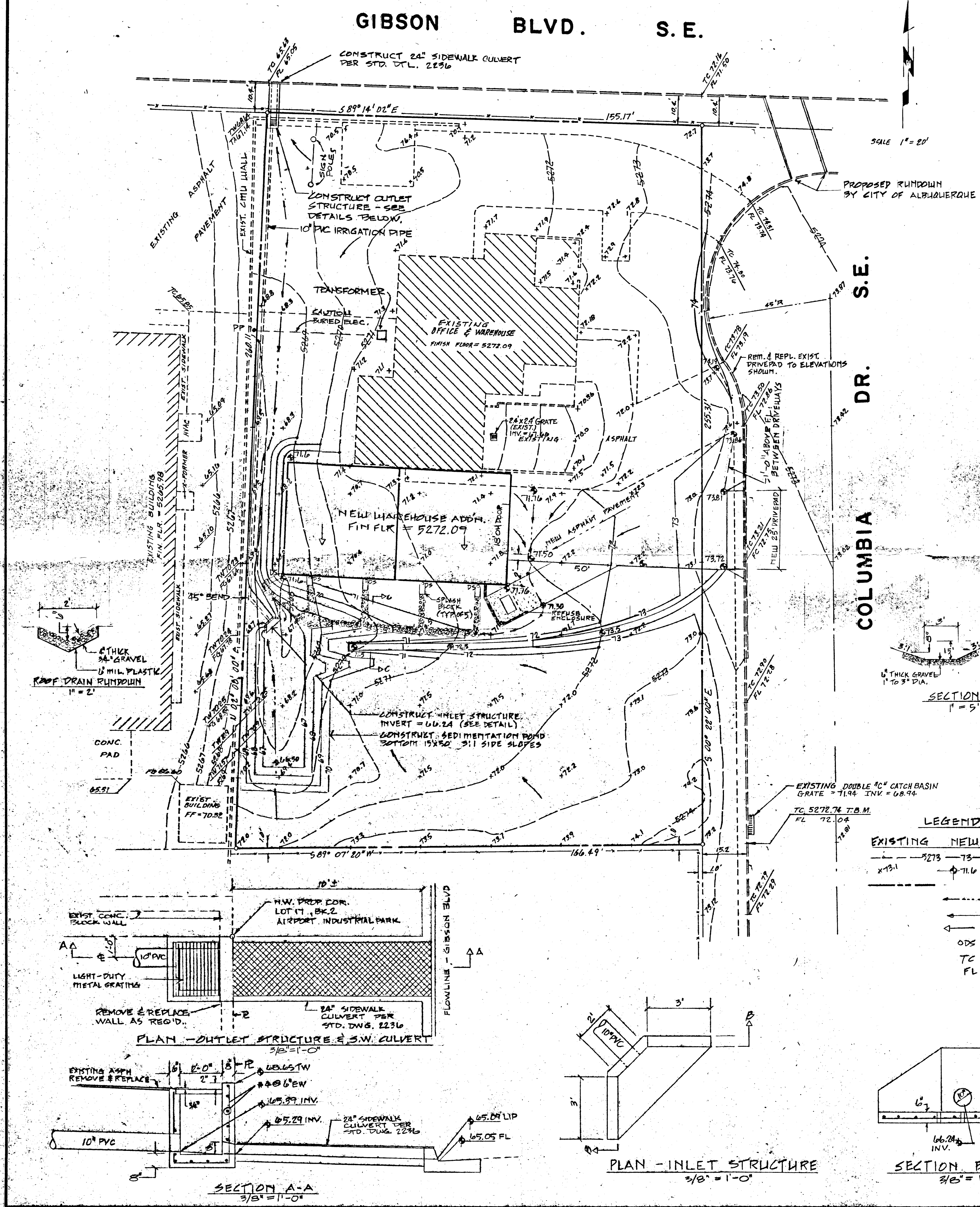
$$\Delta Q_{100} = (1.6 + 1.4 + 0.4 + 0.6) - (0.8 + 2.8) = 0.4 \text{ CFS (INCREASE)}$$



TYPICAL PRIVATE STORM INLET SECTION

SCALE: 1" = 1' - 0"

2000.009.2



DRAINAGE CALCULATIONS

PRE-DESIGN CONFERENCE FINDINGS:

- Drainage plan per D.P.M. guidelines required prior to building permit release.
- Site is not located within a designated floodzone.
- Down stream flooding exists at Yale and Renard and also Miles Road.
- Justification for free discharge will be required if developed runoff eventually feeds the flooding area.
- If developed runoff from site is routed to new M.H., then site is allowed free discharge.

EXISTING CONDITIONS:

The site is located on the south side of Gibson Blvd. S.E. and the west side of Columbia Drive, S.E. Columbia Drive ends in a cul de sac and does not connect to Gibson. There is a storm sewer system crossing Columbia with inlets near the SE corner of the site. According to the storm sewer sectional map No. M16N, there is a storm sewer manhole near the S.E. corner of the site and a 30" line appears to cross the south end of the site. However, upon field investigating the system with the Storm Sewer Maintenance Division, it was determined that the sectionals are wrong; the system is actually on the lot south of the site which is a mini-warehouse facility. The manhole shown on the sectionals as being near the SE corner of lot 16 is actually in the center of Columbia Street. (Storm sewer manhole, S-32). Connecting to this system to drain this site is not feasible. There is a depression in the SW corner of the site that has served as a retention pond. No record of an existing drainage plan could be found.

DEVELOPED CONDITIONS:

It is proposed to construct a 3200 sf addition to the warehouse and additional asphalt pavement. It is proposed to free-discharge all runoff from the site to Gibson Boulevard by means of a 10" pvc pipe and a sidewalk culvert. None of the runoff from the site will reach the downstream flood zones since the flow will be collected at manhole S22 less than 500 feet west of the site on Gibson Blvd. At this manhole there is a catch basin and a grate spanning the full width of the east-bound lanes. Runoff from the site should be in the storm sewer long before the peak runoff occurs in Gibson Boulevard.

SOIL INFORMATION:

(Refer to "Soil Survey of Bernalillo County", June 1977.) Soil is WaB, Wink fine sandy loam, 0 to 5 percent slopes, hydrologic soil group "B".

TIME OF CONCENTRATION:

Due to the relatively small size of the site, the minimum time of concentration of ten (10) minutes is used in the following calculations:

RAINFALL, 100-YEAR, 6-HOUR:

(Refer to D.P.M., Plate 22.2 D-1). $R_6 = 2.3$ inches.

RAINFALL INTENSITY:

(Refer to D.P.M., Plate 22.2 D-2). $I = R_6 \times 6.84 \times T_c^{-0.51}$

$I = 2.3 \times 6.84 \times 10^{-0.51} = 4.86$ in./hr.

SITE AREAS AND IMPERVIOUSNESS:

Surface Type	"C"	"CN"	Direct Runoff	Existing Area (Sq. Ft.)	Developed Area (Sq. Ft.)
Building Roof	0.90	98	2.10	4367	7567
Asphalt	0.95	98	2.10	8793	10343
Concrete	0.95	98	2.10	1147	1147
Landscaping	0.25	61	0.20	2318	2318
Undeveloped	0.40	82	0.90	24807	20057
Totals				41432	41432

WEIGHTED "C" VALUES:

Existing: $C_w = (0.90 \times 4367 + 0.95 \times 9940 + 0.25 \times 2318 + 0.40 \times 24807) / 41432$

$C_w = 0.58$

BENCH MARK:

A.C.S. Station 6-116A, located on the north side of Gibson Boulevard, 1215' (+) west of Girard and 35' (+) east of a drop inlet. A square chiseled on top of a concrete curb. Elevation = 5249.497 Feet.

S.O. 191

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY

NOTICE TO CONTRACTOR

- An excavation/construction permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
- All work detailed on these plans to be performed under contract, except as otherwise stated or provided hereon, shall be constructed in accordance with Standard Specifications for Public Works Construction, 1986.
- Two (2) working days prior to any excavation, contractor must contact New Mexico One Call System, Inc. (260-1990), for location of existing utilities.
- Prior to construction, the contractor shall excavate and verify the horizontal and vertical locations of all obstructions. Should a conflict exist, the contractor shall notify the engineer or surveyor so that the conflict can be resolved with a minimum amount of delay.
- Backfill compaction shall be according to **ARTERIAL** street use.
- Maintenance of these facilities shall be the responsibility of the owner of the property served.
- The address of the property served is **2101 Columbia Drive SE**.

APPROVALS:

HYDROLOGY *Bernie Montoya* (Name) *12/29/91* (Date)

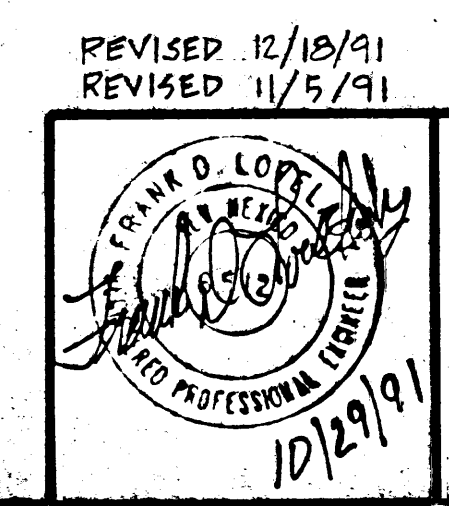
INSPECTOR (Name) (Date)

CONSTRUCTION (Name) (Date)

RECEIVED

DEC 8 1991

HYDROLOGY DIVISION



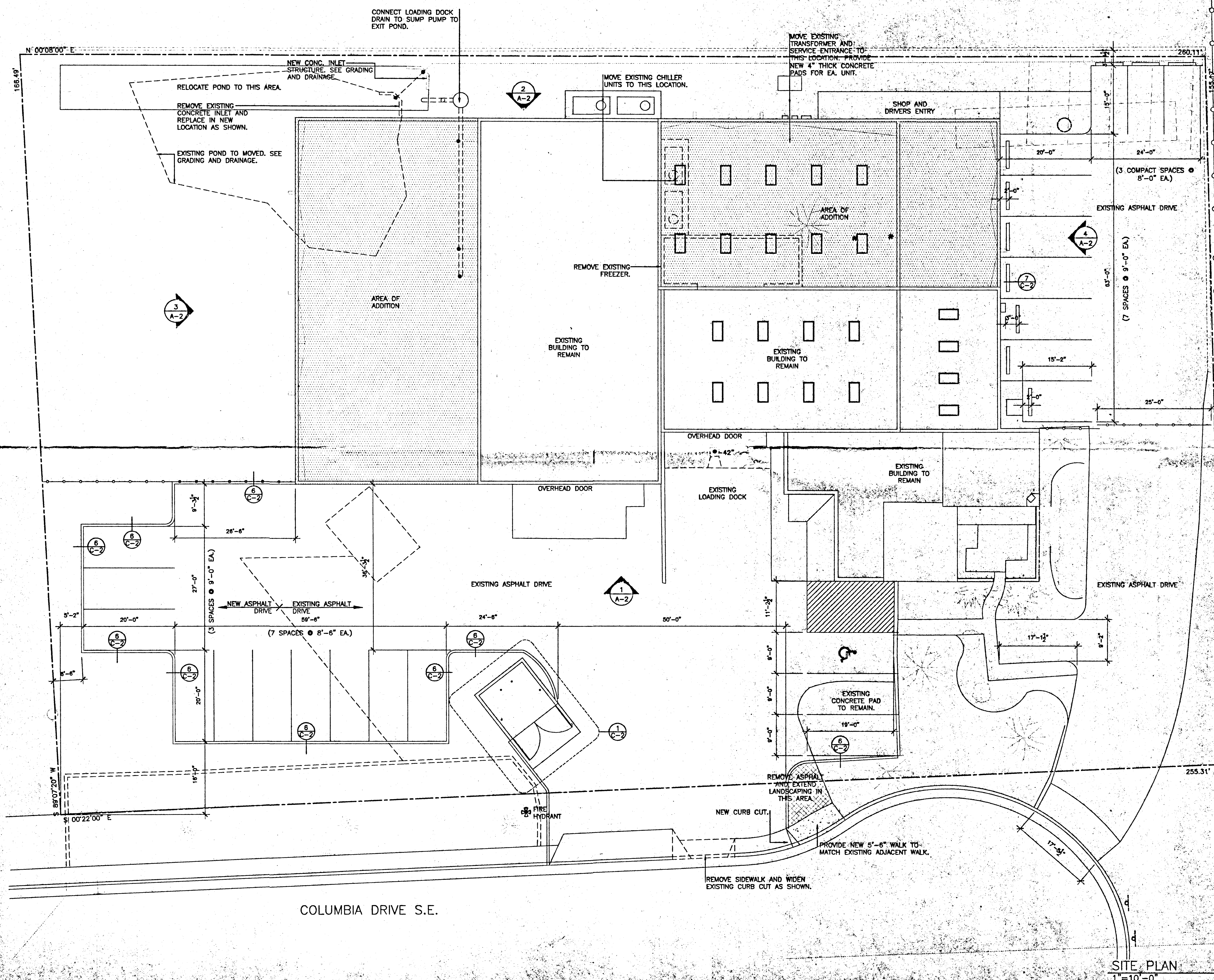
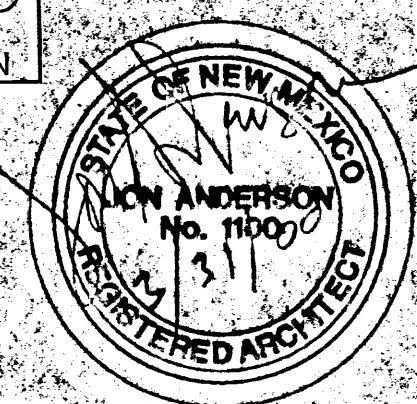
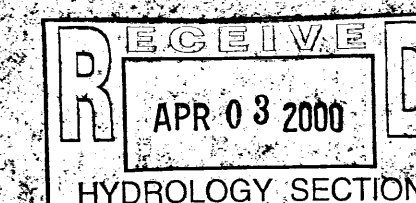
GRADING & DRAINAGE PLAN

NEW BUILDING ADDITION FOR

STAN'S FROZEN FOODS

2101 COLUMBIA DR. S.E.

ALBUQUERQUE, NEW MEXICO



GENERAL DATA

LEGAL DESCRIPTION:
LOT 17, BLOCK 2, AIRPORT INDUSTRIAL PARK, ALBUQUERQUE, NEW MEXICO.

ADDRESS:
2101 COLUMBIA DRIVE S.E. ALBUQUERQUE, NEW MEXICO.

OCCUPANCY GROUP: B AND S-2

OCCUPANCY LOAD:

OCCUPANCY AT OFFICE:
EXISTING OFFICE (OLD SHOP) = 678.33
EXISTING OFFICE (FRONT) = 1,339.75
EXISTING OFFICE (BACK) = 614.09
NEW OFFICE = 808.66
TOTAL OFFICE S.F. = 3,438.83
OCC. LD. = 3,438.83/200 = 17.19

OCCUPANCY AT WAREHOUSE:
EXIST. WAREHOUSE = 1,004.65
EXIST. FREEZER = 1,526.33
EXIST. WAREHOUSE = 1,462.73
NEW WAREHOUSE = 660.00
NEW WAREHOUSE = 2,976.66
TOTAL WAREHOUSE S.F. = 7,630.37
OCC. LD. = 7,630.37/500 = 15.26

OCCUPANCY AT SHOP:
NEW SHOP = 1,265.00
TOTAL SHOP S.F. = 1,265.00
OCC. LD. = 1,265.00/50 = 25.3

TOTAL OCCUPANT LOAD:
OFFICE = 17.19
WAREHOUSE = 15.26
SHOP = 25.3
TOTAL OCC. LD. = 57.75

TOTAL SQUARE FOOTAGE:
EXISTING:
OFFICE = 1,953
SHOP (NOW OFFICE) = 678
WAREHOUSE = 2,467
FREEZER = 1,526
TOTAL EXISTING S.F. = 6,625

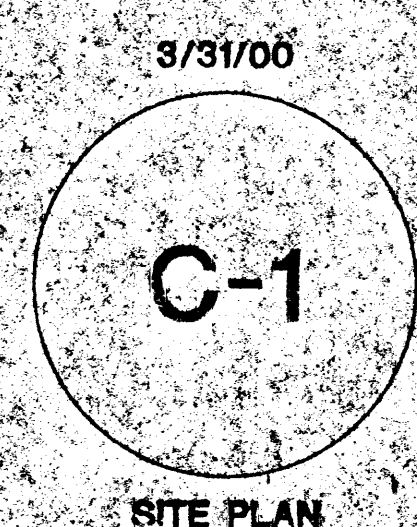
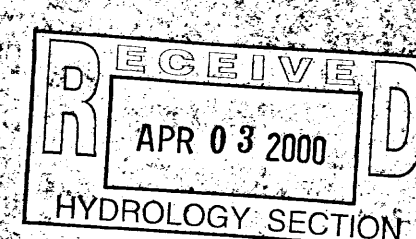
PROPOSED:
NEW OFFICE = 808
UPPER LEVEL STORAGE = 1,265
NEW SHOP = 1,265
NEW WAREHOUSE = 2,976
TOTAL NEW S.F. = 6,312

TOTAL S.F. = 12,936

PARKING CALCULATIONS
OFFICE = 3,437/2000 = 1.8
WAREHOUSE = 8,498/2000 = 4.3
TOTAL REQUIRED PARKING = 2.3
TOTAL PROVIDED PARKING = 23

TOTAL REQUIRED H.C. PARKING = 1
TOTAL PROVIDED H.C. PARKING = 1

STAN'S FROZEN FOODS
2101 COLUMBIA DRIVE S.E.
JON ANDERSON ARCHITECT AIA 505-764-8308 FAX 764-2879
912 ROMA AVE NW ALBUQUERQUE NEW MEXICO 87102



COLUMBIA DRIVE S.E.

SITE PLAN
1"=10'-0"

C-1
SITE PLAN

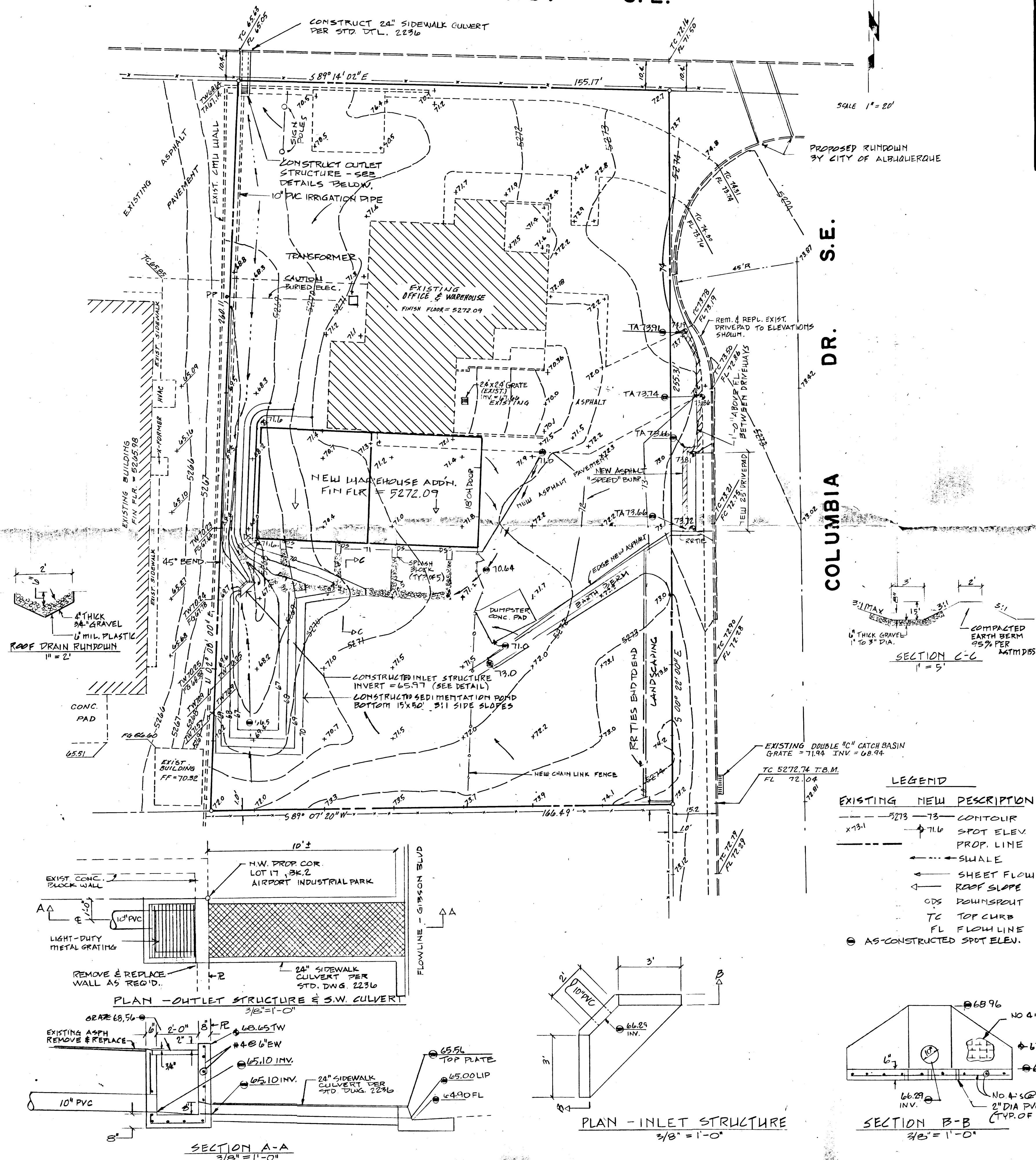
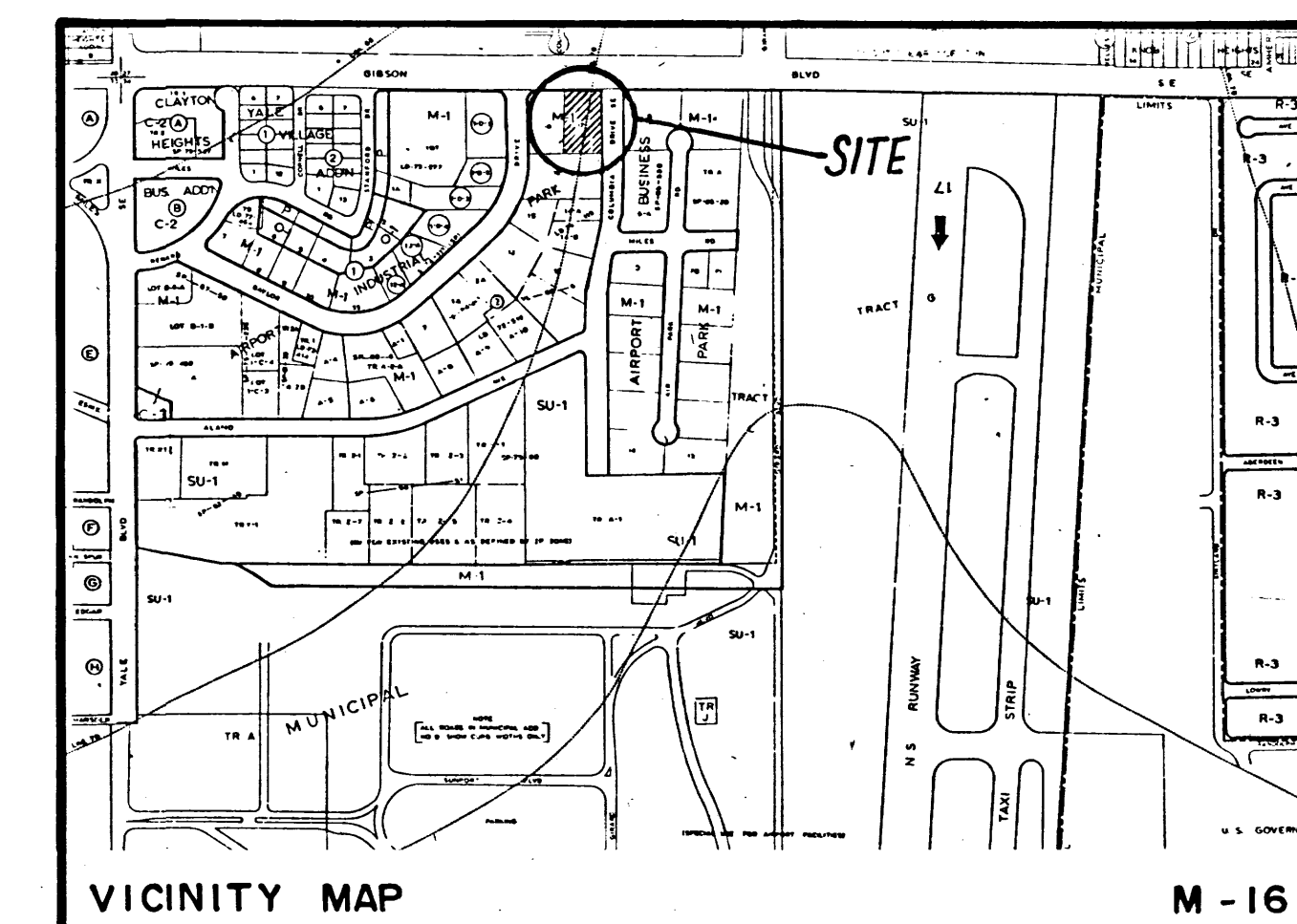
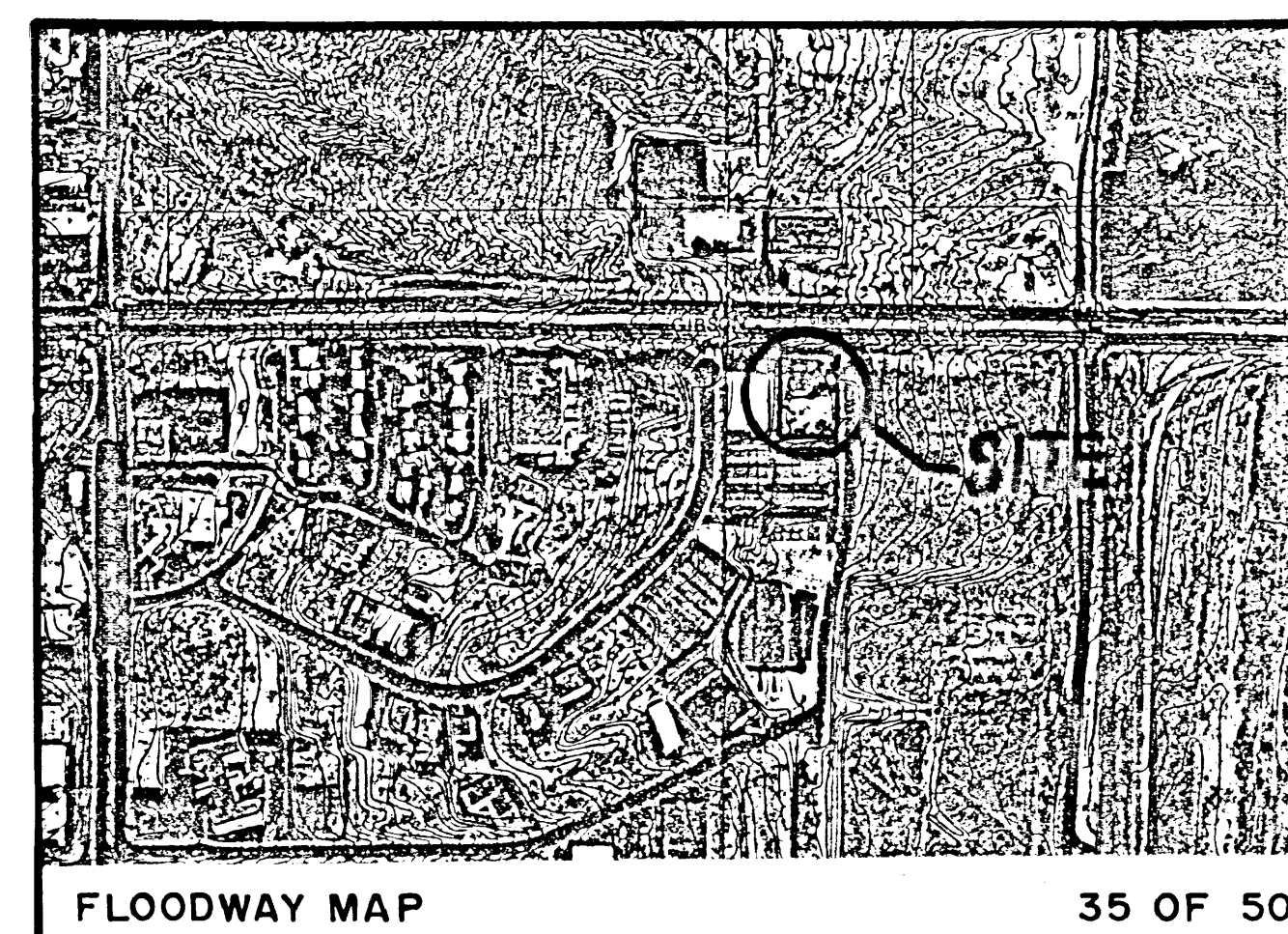
Having made an on-site inspection of the site and having taken as-constructed spot elevations at critical points on the site, I hereby certify that the constructed drainage improvements are in substantial conformance with the approved grading and drainage plan, engineer's stamp dated 10/29/91 and last revision of 12/18/91.

Frank D. Lovelady, N.M.P.E. 6512

6/3/93
(Date)

SCALE 1" = 20'

PROPOSED RUNDOWN
BY CITY OF ALBUQUERQUE



CALCULATIONS

1. Drainage plan per D.P.M. guidelines required prior to building permit release.
2. Site is not located within a designated floodzone.
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4. Justification for free discharge will be required if developed runoff eventually feeds the flooding area.
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0.58

A.C.S. Station 6-L16A, located on the north side of Gibson Boulevard, 1215'(\pm) west of Girard and 35'(\pm) east of a drop inlet. A square chiseled on top of a concrete curb. Elevation = 5249.497 Feet.

Lot 17, Block 2, Airport Industrial Park, Albuquerque, New Mexico.

REVISED 6/3/93
REVISED 12/18/91
REVISED 11/5/91

GRADING & DRAINAGE PLAN
NEW BUILDING ADDITION FOR
STAN'S FROZEN FOODS
2101 COLUMBIA DR. S.E.
ALBUQUERQUE, NEW MEXICO

JUN 1 1999

ROLOGY IS