

# CITY OF ALBUQUERQUE



April 22, 2015

Fred Arfman, P.E.  
Issacson & Arfman, P.A.  
128 Monroe Street NE  
Albuquerque, NM 87108

RE: **Starbucks, 9975 Coors Bypass NW**  
**Grading and Drainage Plan**  
**Engineer's Stamp Date 3-27-2015 (File: B13-D003A2)**

Dear Mr. Arfman:

Based upon the information provided in your submittal received 4-21-15, the above referenced plan is approved for Building Permit. Please attach a copy of this approved plan in the construction sets when submitting for a building permit.

PO Box 1293 Prior to Certificate of Occupancy release, Engineer Certification per the DPM Checklist will be required.

Albuquerque If you have any questions, you can contact me at 924-3924.

New Mexico 87103

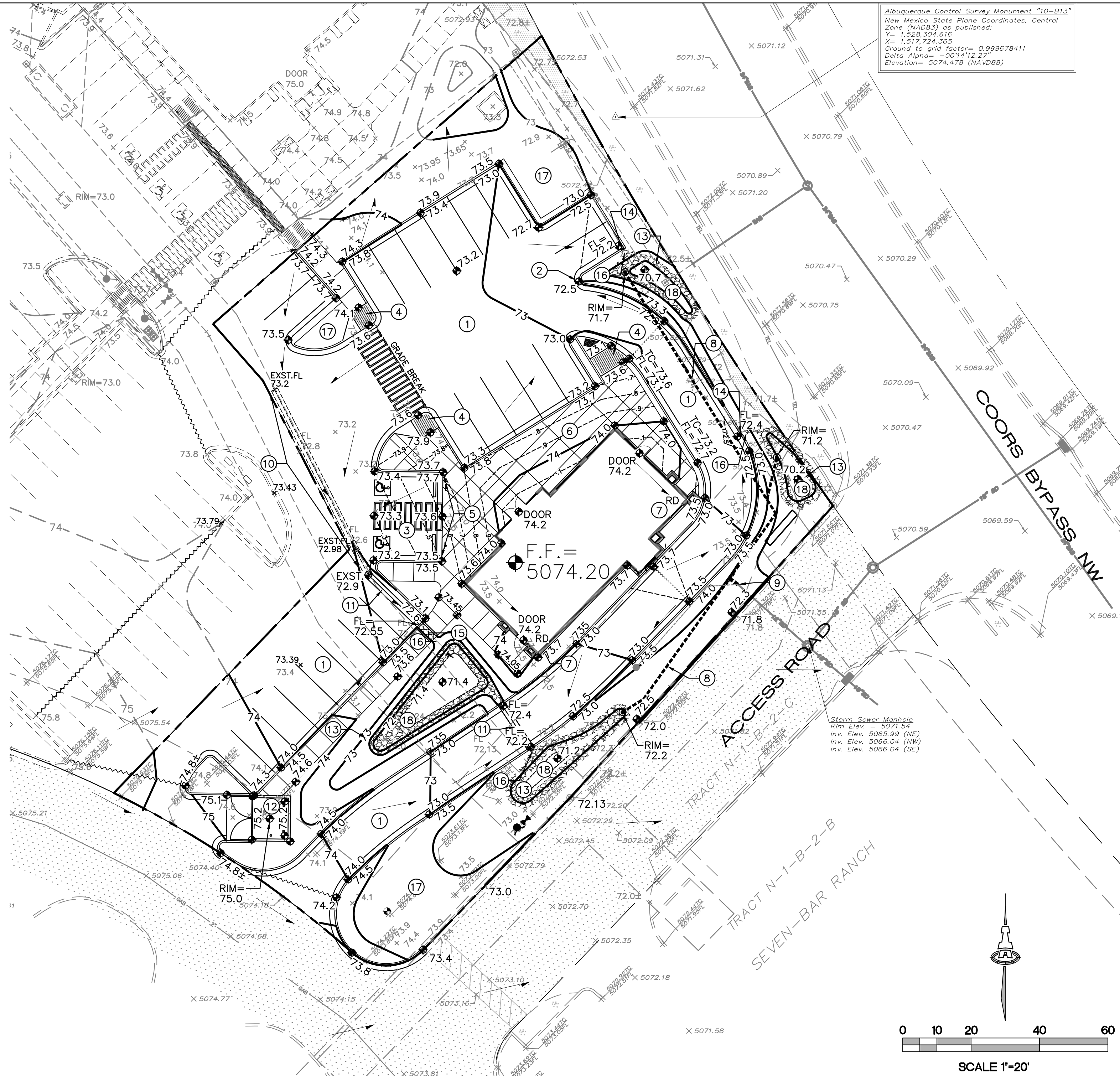
Sincerely,

www.cabq.gov

Jeanne Wolfenbarger, P.E.  
Senior Engineer, Planning Dept.  
Development Review Services

Orig: Drainage file  
c.pdf via Email: Recipient, Monica Ortiz





**PROJECT INFORMATION**

PROPERTY: THE SITE IS A PARTIALLY DEVELOPED COMMERCIAL PROPERTY LOCATED WITHIN CITY OF ALBUQUERQUE ZONE MAP B-13. THE SITE IS BOUND TO THE EAST BY COORS BYPASS NW AND TO THE NORTH, WEST AND SOUTH BY FULLY DEVELOPED COMMERCIAL PROPERTIES.

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE THE CONSTRUCTION OF A NEW COMMERCIAL BUILDING WITH DRIVE-THRU, UPDATED ASPHALT PAVED ACCESS AND PARKING, PEDESTRIAN WALKS, DRAINAGE IMPROVEMENTS, AND LANDSCAPING.

LEGAL: A PORTION OF TRACT N-1-B-2-A, SEVEN BAR RANCH, TOWN OF ALAMEDA GRANT, CITY OF ALBUQUERQUE, NM

ADDRESS: 9975 COORS BYPASS NW

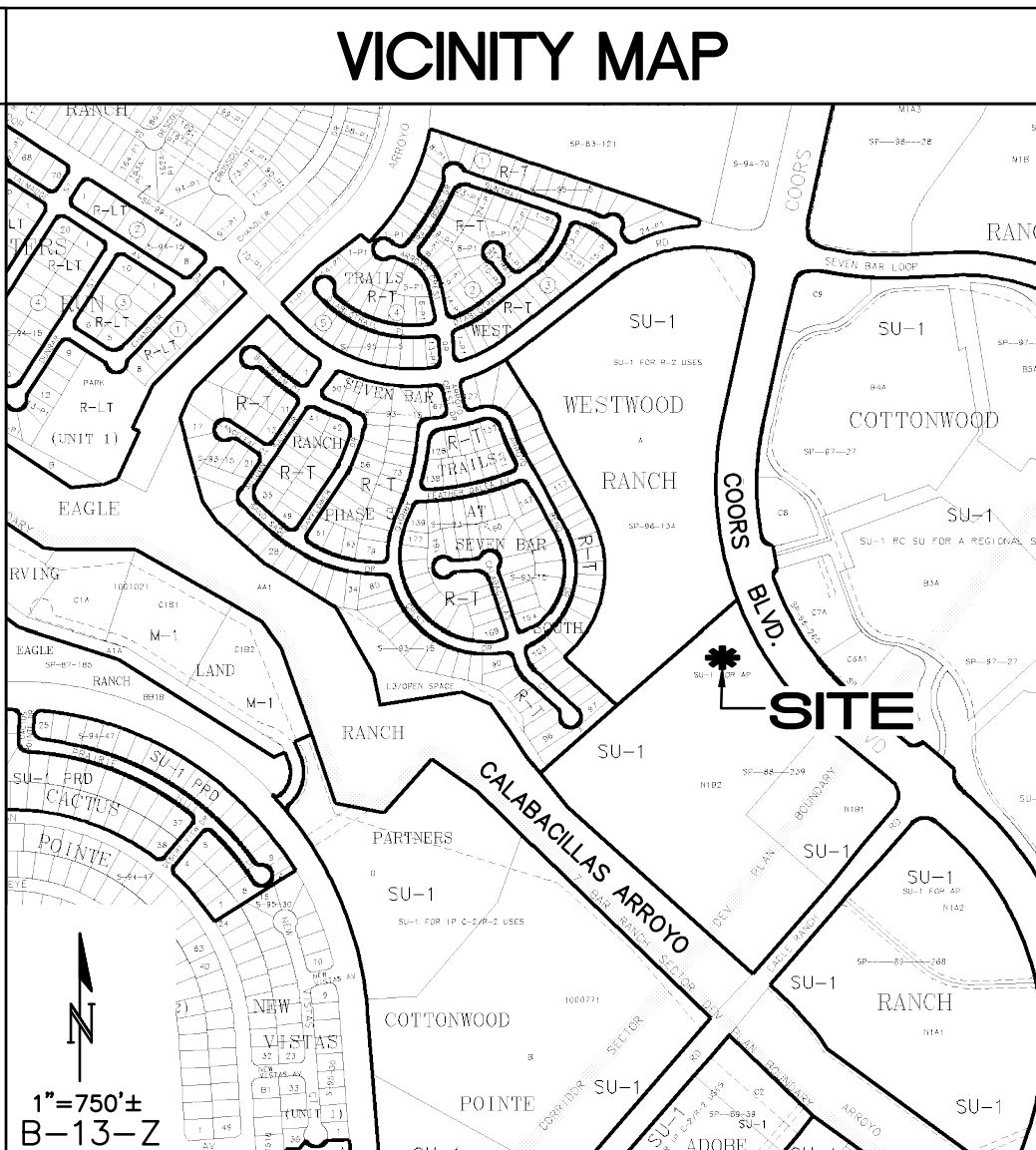
AREA: 0.65 ACRES

BENCHMARK: ELEVATION DATUM IS BASED ON C.O.A. SURVEY MONUMENT 9-B13. ELEVATION = 5072.491' (NAVD 1988)

OFF-SITE: FLOW FROM THE ADJACENT RESTAURANT WILL CONTINUE TO DRAIN THROUGH THIS PROPERTY VIA DRAINAGE EASEMENT.

FLOOD HAZARD: PER BERNALILLO COUNTY FIRM MAP #35001C0108G, THE SITE IS LOCATED WITHIN FLOODZONE 'X' (UNSHADED) DESIGNATED AS AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

SURVEYOR: RUSS P. HUGG  
SURV-TEC INC.  
9384 VALLEY VIEW DRIVE, N.W., 87114  
PHONE: 505-897-3366



**DRAINAGE CONCEPT**

THIS SITE IS AN PARTIALLY DEVELOPED PROPERTY (LONGHORN STEAKHOUSE / RETAIL CENTER DRAINAGE ANALYSIS DATED 09-20-13 - COA HYDROLOGY PROJECT B130003A2). THE AREA TO BE REDEVELOPED LIES WITHIN A PORTION OF BASINS 6 AND 7.

THE SITE WILL CONTINUE TO FREE DISCHARGE TO THE EXISTING STORM DRAIN SYSTEM STUBBED INTO THE SITE.

STORMWATER CONTROL MEASURES ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH' (DEFINED AS THE 90TH PERCENTILE STORM EVENT OR 0.34" [0.44" LESS 0.1" FOR INITIAL ABSTRACTION] OF STORMWATER WHICH DISCHARGES DIRECTLY TO A PUBLIC STORM DRAINAGE SYSTEM).

'FIRST FLUSH' RETENTION PONDS (Fp) ARE PROVIDED WHERE POSSIBLE.

STORMWATER FROM THE IMPERVIOUS AREAS SHALL BE DIRECTED TO THESE BASINS VIA CURB OPENINGS. ONCE THE BASINS FILL, EXCESS STORMWATER WILL BE PASSED TO THE STORM DRAIN SYSTEM TO CONTINUE ALONG HISTORIC FLOWPATHS.

- KEYED NOTES**
1. CONSTRUCT PAVEMENT AT ELEVATIONS SHOWN. SEE ARCHITECTURAL FOR LIMITS OF PAVEMENT REMOVE / REPLACE. TRANSITIONS TO BE SMOOTH.
  2. SPOT ELEVATIONS WITHIN GUTTER AREA REPRESENT FLOWLINE. ADD 0.5' TYPICAL FOR TOP OF ADJACENT CURB OR WALK ELEVATIONS.
  3. SLOPES WITHIN HANDICAP PARKING AREAS SHALL MEET ADA REQUIREMENTS. (MAX. SLOPE = 2% IN ANY DIRECTION).
  4. CONSTRUCT HANDICAP ACCESS RAMP TO ADA STANDARDS (1:12 MAX.). SEE ARCHITECTURAL FOR DETAILS.
  5. TOP OF NEW ASPHALT PAVEMENT SHALL BE FLUSH WITH EXISTING CONC. SIDEWALK THIS AREA.
  6. 0.1' CONTOURS PROVIDED TO CLARIFY GRADING CONCEPT.
  7. ROOF DISCHARGE VIA DOWNSPOUT. CONSTRUCT CONCRETE 'U' CHANNEL TO DRAIN TO PAVEMENT. SEE DETAIL SHEET CG-501.
  8. CONSTRUCT PRIVATE STORM DRAIN SYSTEM. SEE SHEET CG-501 FOR PLAN AND DETAILS.
  9. MAKE CONNECTION TO EXISTING PRIVATE STORM DRAIN STUB.
  10. PORTION OF EXISTING CONCRETE ALLEY GUTTER TO REMAIN.
  11. CONSTRUCT 2' WIDE CONCRETE ALLEY GUTTER WITH 2' WIDE CURB CUTS (EACH END) AT FLOWLINE ELEVATIONS SHOWN. SEE SHEET CG-501 FOR DETAIL.
  12. CONSTRUCT NEW CONCRETE DUMPSTER PAD SLOPING TO SANITARY SEWER INLET. SEE UTILITY PLAN.
  13. CONSTRUCT 12" DEEP FIRST FLUSH RETENTION POND AT ELEVATIONS SHOWN. INSTALL ANGLAR ROCK TO DEFINE PERETER. HATCHED AREA REPRESENTS EXTENTS OF PONDING. SLOPE AT 3:1. ALL 'FIRST FLUSH' PONDING, CURB CUTS AND COVERED SIDEWALK CULVERTS AND STORM DRAIN INLETS MUST BE INSTALLED PER PLAN.
  14. CONSTRUCT 12" WIDE (BOTTOM WIDTH) CURB CUT AT FLOWLINE SHOWN.
  15. CONSTRUCT 18" WIDE COVERED SIDEWALK CULVERT PER C.O.A. STD. DWG. 2236.
  16. CONSTRUCT 2' WIDE FRACTURED FACE ROCK SWALE (SEE GENERAL NOTE AA) AT ELEVATIONS SHOWN. SEE DETAIL SHEET CG-501.
  17. TYPICAL: DEPRESS LANDSCAPING FOR WATER HARVESTING (THESE ARE SEPARATE FROM FIRST FLUSH PONDING). NOTE: NO WATER HARVESTING SHALL OCCUR WITHIN 10' OF BUILDING.
  18. INSTALL PERCOLATION PIT THIS AREA. SEE DETAIL SHEET CG-501.

**ENGINEER'S CERTIFICATION**

PER C.O.A. HYDROLOGY BUILDING PERMIT APPROVAL, PRIOR TO CERTIFICATE OF OCCUPANCY RELEASE, ENGINEER'S CERTIFICATION PER THE DPM CHECKLIST IS REQUIRED.

CONTRACTOR SHALL PROVIDE AN AUTOCAD FORMAT AS-BUILT SURVEY PREPARED, STAMPED AND DATED BY A LICENSED SURVEYOR WHICH INCLUDES:

- AS-BUILT SPOT ELEVATIONS AT EACH DESIGN SPOT ELEVATION SHOWN ON THE APPROVED PLAN;
- TOP AND BOTTOM ELEVATIONS DEFINING ALL FIRST FLUSH RETENTION PONDS, AND OTHER SITE PONDING;
- NOTE ANY ITEMS NOT CONSTRUCTED;
- SHOW LINEWORK FOR ANYTHING CONSTRUCTED DIFFERENT FROM THE APPROVED PLAN.

**GENERAL NOTES**

- A. ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT.

B. THE CONTRACTOR SHALL ABIDE BY ALL STATE, LOCAL, AND FEDERAL LAWS, CODES, RULES AND REGULATIONS WHICH APPLY TO THE CONSTRUCTION OF THESE IMPROVEMENTS, INCLUDING EPA AND ADA REQUIREMENTS.

C. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FOR THE PROJECT PRIOR TO COMMENCING CONSTRUCTION, OR PRIOR TO OCCUPANCY, AS APPROPRIATE. IF PERMITS ARE DELAYED OR ISSUED WITH CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARCHITECT IMMEDIATELY.

D. COORDINATE WORK WITH SITE PLAN, UTILITY PLAN, DEMOLITION PLAN, AND LANDSCAPE PLAN.

E. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING OBSTRUCTIONS, AND CONDITION OF ALL EXISTING INFRASTRUCTURE PRIOR TO CONSTRUCTION. REPORT ALL DISCREPANCIES TO THE ARCHITECT AND VERIFY THE ARCHITECT'S INTENT BEFORE PROCEEDING.

F. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SAFETY.

G. THE CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS ON SITE AT ALL TIMES. THE CONTRACTOR SHALL NOT SCALE DRAWINGS. ONLY WRITTEN DIMENSIONS OR KEYED NOTES SHALL BE USED.

H. CONTRACTOR SHALL OBTAIN ALL REQUIRED INSPECTIONS OF THE WORK. CONTRACTOR SHALL REGULARLY UPDATE OWNER AND ARCHITECT REGARDING THE STATUS OF THE INSPECTIONS.

I. CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THE PROPERTY AND/OR PROJECT LIMITS. ANY DAMAGE TO ADJACENT STRUCTURES RESULTING FROM THE CONSTRUCTION PROCESS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- J. CONSTRUCTION EQUIPMENT SHALL NOT OBSTRUCT DRIVEWAYS. EQUIPMENT SHALL ONLY OBSTRUCT DESIGNATED TRAFFIC LANES IF APPROPRIATE BARRICADING PERMITS HAVE BEEN OBTAINED. THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR MATERIAL IN THE RIGHT-OF-WAY.

K. THE CONTRACTOR SHALL PROVIDE A CONSTRUCTION TRAFFIC CONTROL AND SIGNING PLAN THAT CONFORMS TO THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND LOCAL REQUIREMENTS. THE CONTRACTOR SHALL OBTAIN BARRICADING PERMITS FROM THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION WORK ON OR ADJACENT TO EXISTING STREETS.

L. THE CONTRACTOR SHALL MAINTAIN ALL BARRICADING AND CONSTRUCTION SIGNING AT ALL TIMES. THE CONTRACTOR SHALL VERIFY THE PROPER LOCATION OF ALL BARRICADING AT THE END AND BEGINNING OF EACH DAY.

M. PAVEMENT GRADES IN MARKED HANDICAPPED PARKING AREAS SHALL NOT EXCEED 2.0% IN ANY DIRECTION. FOR ALL ACCESSIBLE ROUTES, MAXIMUM ALLOWABLE GROSS SLOPE IS 2.0% AND MAXIMUM LONGITUDINAL SLOPE WITHOUT RAMP IS 5.0% FOLLOW ALL ADA ACCESSIBILITY GUIDELINES OR CITY CODES, WHICHEVER IS MORE STRINGENT.

N. ALL TRASH, DEBRIS, & SURFACE VEGETATION SHALL BE CLEARED AND LEGALLY DISPOSED OF OFFSITE.

O. PROPOSED SPOT AND CONTOUR ELEVATIONS SHOWN REPRESENT TOP OF FINISH MATERIAL (I.E. TOP OF CONCRETE, TOP OF CONCRETE BUILDING PAD, TOP OF PAVEMENT MATERIAL, TOP OF LANDSCAPING MATERIAL, ETC.). CONTRACTOR SHALL GRADE, COMPACT SUBGRADE AND DETERMINE EARTHWORK ESTIMATES BASED ON ELEVATIONS SHOWN MINUS FINISH MATERIAL THICKNESSES.

P. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT.

Q. EXISTING UTILITY LINES ARE SHOWN IN AN APPROXIMATE MANNER ONLY AND MAY BE INCOMPLETE OR OBSOLETE. SUCH
- LINES MAY OR MAY NOT EXIST WHERE SHOWN OR NOT SHOWN. CONTRACTOR SHALL CONTACT NM-811 FOR UTILITY LINE SPOTS TWO WORKING DAYS PRIOR TO CONDUCTING SITE FIELD WORK. CONTRACTOR SHALL FIELD VERIFY AND LOCATE ALL UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF NECESSARY DRY UTILITY ADJUSTMENTS.

R. SOIL TESTING AND INSPECTION SERVICES DURING EARTHWORK OPERATIONS ARE REQUIRED. CONTRACTOR SHALL ALLOW TESTING LABS TO INJECT AND APPROVE COMPACTED SUBGRADES, BACKFILL, AND FILL LAYERS BEFORE FURTHER CONSTRUCTION WORK IS DONE. SHOULD COMPACTION TESTS INDICATE INADEQUATE DENSITY, CONTRACTOR SHALL PROVIDE ADDITIONAL COMPACTION AND TESTING AT THE CONTRACTOR'S SOLE EXPENSE.

S. CONTRACTOR SHALL PROVIDE ALL OTHER CONSTRUCTION STAKING. CONTRACTOR SHALL LOCATE AND PRESERVE ALL BOUNDARY CORNERS AND REPLACE ANY LOST OR DISTURBED CORNERS AT CONTRACTOR'S SOLE EXPENSE. PROPERTY CORNERS SHALL ONLY BE RESET BY A REGISTERED LAND SURVEYOR.

T. A CURRENT STORMWATER CONTROL PERMIT, INCLUDING AN EROSION SEDIMENT CONTROL PLAN (E.S.C.) FOR EROSION AND SEDIMENT CONTROL IS REQUIRED FOR ALL CONSTRUCTION, DEMOLITION, CLEARING, AND GRADING OPERATIONS THAT DISTURB THE SOIL ON ONE ACRE OR MORE OF LAND. OWNER WILL COORDINATE.

U. IF THE SITE IS SMALL ENOUGH NOT TO REQUIRE A SWPPP/NPDES PERMIT (LESS THAN ONE ACRE) THE CONTRACTOR SHALL STILL BE RESPONSIBLE FOR USING EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S) TO ENSURE THAT NO SOIL ERODES FROM
- THE SITE ONTO ADJACENT PUBLIC RIGHT-OF-WAY.

V. POST-CONSTRUCTION MAINTENANCE FOR PRIVATE STORMWATER FACILITIES WILL BE THE RESPONSIBILITY OF THE FACILITIES OWNER. PERIODIC INSPECTION AND CERTIFICATIONS OF THE FACILITIES MAY BE REQUIRED BY THE CITY ENGINEER.

W. STORMWATER CONTROL MEASURES SHOWN ON THIS PLAN ARE REQUIRED TO PROVIDE MANAGEMENT OF 'FIRST FLUSH' (DEFINED AS THE 90TH PERCENTILE STORM EVENT OR 0.44" OF STORMWATER WHICH DISCHARGES DIRECTLY TO A PUBLIC STORM DRAINAGE SYSTEM).

X. ADJUST ANY RIMS OF EXISTING UTILITY FEATURES AS NECESSARY TO MATCH NEW GRADES. UTILITIES IN PAVED AREAS SHALL BE HS-25 TRAFFIC RATED.

Y. ALL NEW PAVEMENT SURFACES SHALL BE CONSTRUCTED WITH POSITIVE SLOPE AWAY FROM BUILDINGS AND POSITIVE SLOPE TOWARD EXISTING AND/OR PROPOSED DRAINAGE PATHS. PAVING AND ROADWAY GRADES SHALL BE ±0.1' FROM PLAN ELEVATIONS. BUILDING PAD ELEVATION SHALL BE ±0.05' FROM PLAN ELEVATION.

Z. WHERE GRADES BETWEEN NEW AND EXISTING ARE SHOWN AS 'MATCH' OR '±', TRANSITIONS SHALL BE SMOOTH.

AA. ALL EROSION PROTECTION TO BE FRACTURED FACE ROCK (F.F. ROCK) = 6" AVG. DIA. ANGULAR FACED ROCK PLACED OVER GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.).

AB. CONTRACTOR SHALL COMPLY WITH LOCAL REGULATIONS FOR RESEEDING OF DISTURBED AREAS.

AC. ENGINEER RECOMMENDS THAT OWNER MAINTAIN EROSION PROTECTION ELEMENTS. ENGINEER RECOMMENDS THAT OWNER INSPECT SITE YEARLY AND AFTER EACH RAINFALL TO IDENTIFY NEW AREAS OF EROSION AND INSTALL ADDITIONAL EROSION PROTECTION AS NEEDED BASED ON ACTUAL OCCURRENCES.

AD. MEASURES REQUIRED FOR EROSION AND SEDIMENT CONTROL SHALL BE INCIDENTAL TO THE PROJECT COST.

**GENERAL STORM DRAIN NOTES**

- ALL STORM DRAIN LINES AND FITTINGS TO BE ADS N-12WT (WATERTIGHT) UNLESS NOTED.
- INSTALL ALL STORM DRAIN INLETS AND PIPE PER MANUFACTURER'S SPECIFICATIONS.
- CONTRACTOR TO TRANSITION BETWEEN EXISTING AND PROPOSED STORM DRAIN PIPE USING WATERTIGHT FITTINGS AS REQUIRED (ACCOMMODATE MATERIAL AND SIZE CHANGES)

NOTE TO OWNER: STORM DRAIN SYSTEM WILL REQUIRE REGULAR MAINTENANCE TO ENSURE PROPER FUNCTIONING DURING STORM EVENTS. ENGINEER RECOMMENDS THAT PROPERTY OWNER PUT IN PLACE INSPECTION AND MAINTENANCE CRITERIA SCHEDULED TO OCCUR MONTHLY AND AFTER EACH STORM EVENT.

**LEGEND**

- × 5414.15 EXISTING SPOT ELEVATION
- ◆ 13.6 PROPOSED SPOT ELEVATION
- FLOW DIRECTION
- 04 PROPOSED 1' CONTOUR
- - - -5- - - INTERIM CONTOUR
- F.F. = FINISH FLOOR ELEVATION
- ~~~~~ GRADE BREAK

**ISAACSON & ARFMAN, P.A.**  
Consulting Engineering Associates  
128 Monroe Street N.E.  
Albuquerque, New Mexico 87108  
Ph. 505-268-8828 www.iaacivil.com  
2060 CG-101.dwg Apr 21, 2015

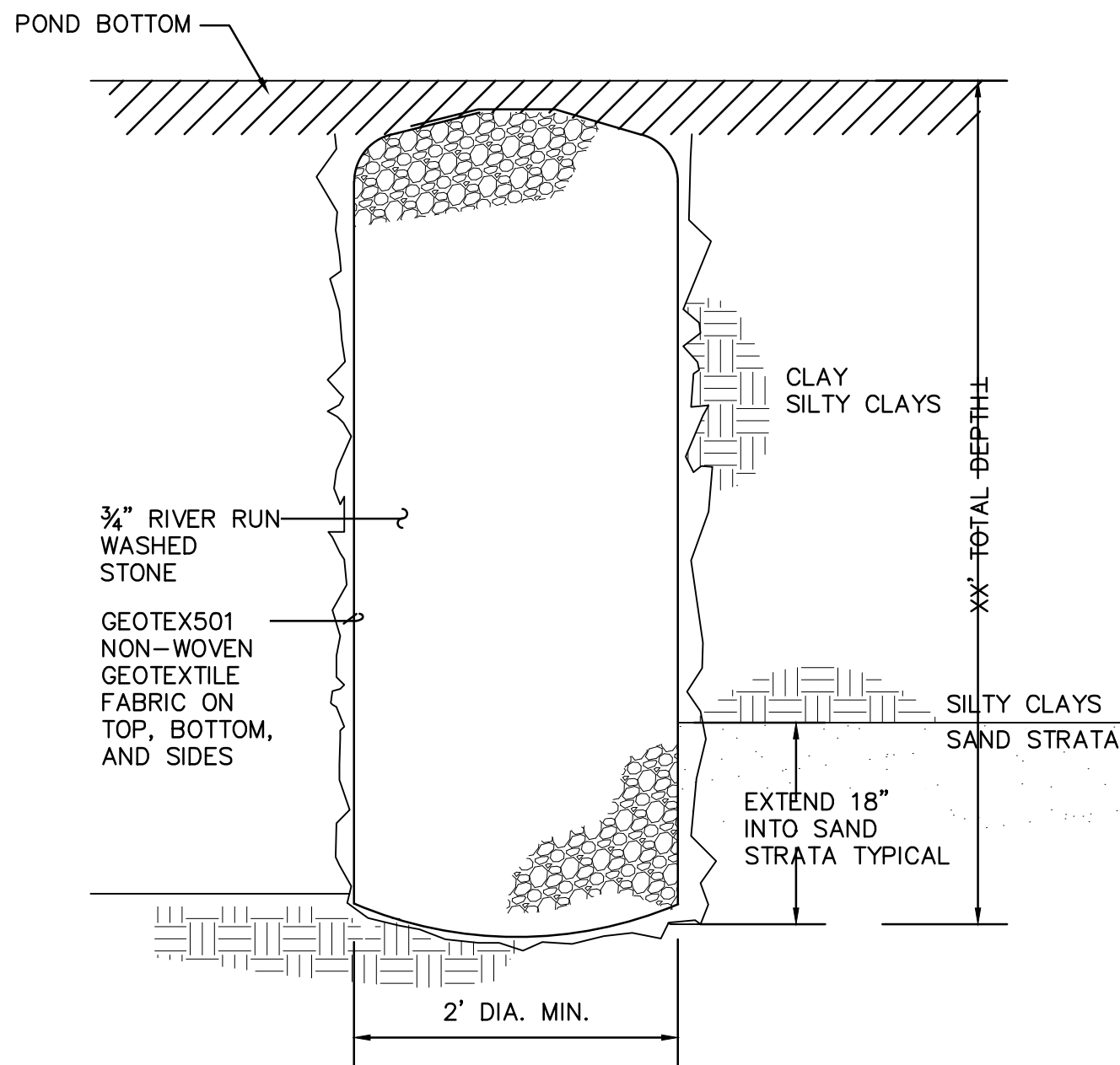
REV	DATE	BY	REVISION
1			
2			
3			
4			
5			

**MODULUS ARCHITECTS**  
220 COPPER AVE. N.W. SUITE 350  
ALBUQUERQUE, NEW MEXICO 87102  
PHONE (505) 338-1499 FAX (505) 338-1498

FRED C. ARFMAN  
NEW MEXICO  
7322  
LICENSED PROFESSIONAL ENGINEER  
03-27-15

PROJECT TITLE STARBUCKS XXXX COORS BYPASS NW ALBUQUERQUE, NEW MEXICO	DRAWN BY: STEPHEN DUNBAR, AIA	JOB NO.	SHEET TITLE GRADING AND DRAINAGE PLAN
DATE 3/26/15	SHEET CG-101	SCALE AS NOTED	DATE 3/26/15

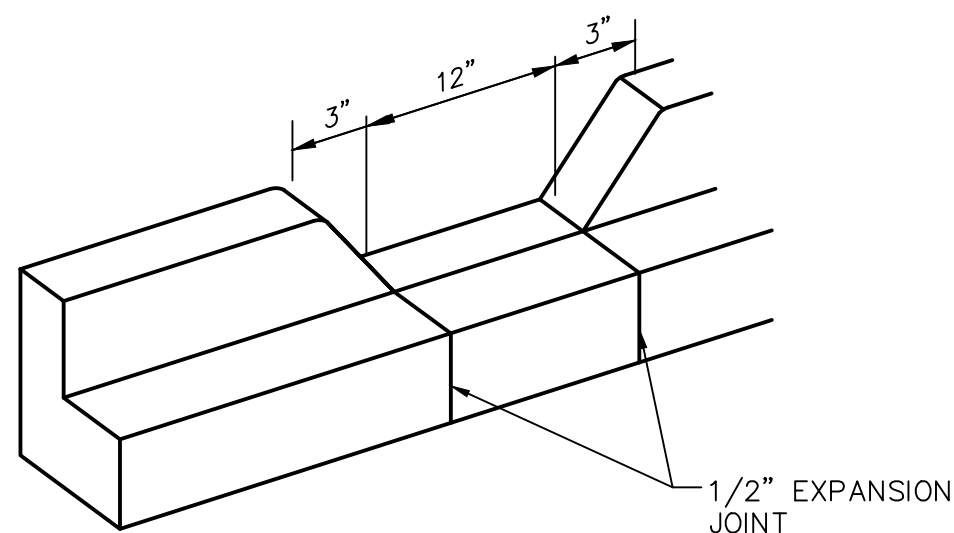




### PERCOLATION PIT

LOCATE CLAY LAYER BELOW SURFACE GRADE. MAY VARY BASED ON LOCATION OF INFILTRATION PIT.

SCALE: N.T.S.



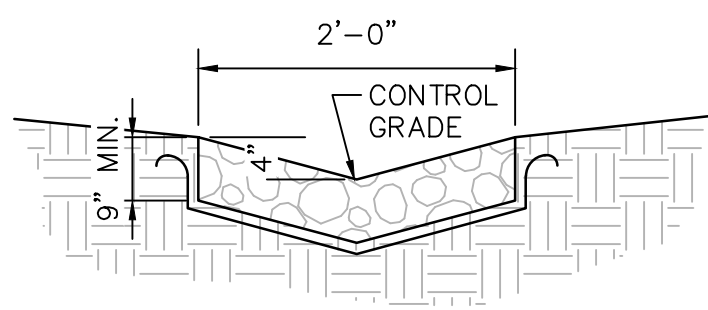
### GENERAL NOTES

- EDGES NOT SPECIFICALLY DIMENSIONED SHALL BE SHAPED WITH A 3/8" EDGING TOOL.

### CURB CUT

SCALE: N.T.S.

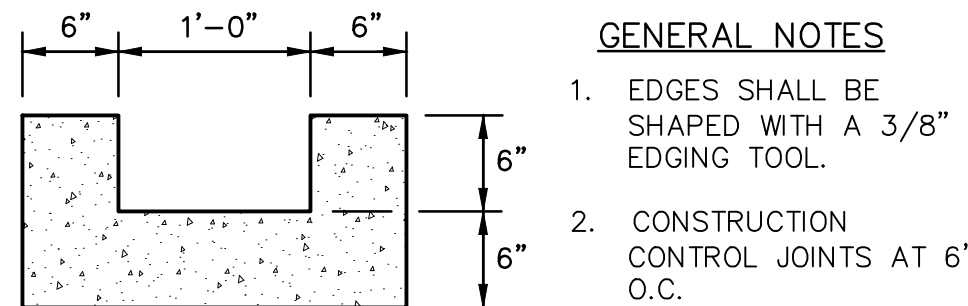
CONSTRUCT ALL SWALES BELOW ADJACENT GRADE TO ENSURE RUNOFF CAN BE CAPTURED AND CONVEYED PROPERLY.



- VARY ANGULAR FACE ROCK SIZE BETWEEN 4" AND 8" DIA. (AVG.=6")
- PLACE GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.) BENEATH ALL EROSION PROTECTION

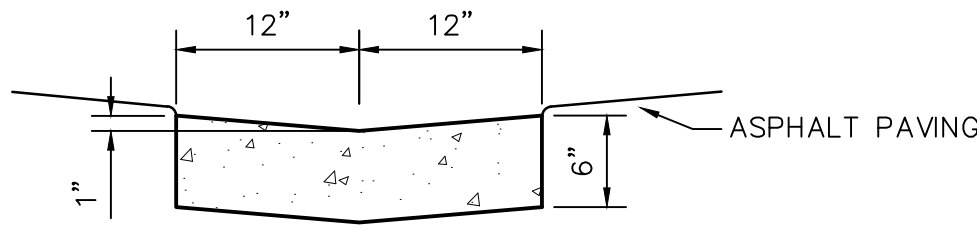
### FRACTURED FACE ROCK SWALE

SCALE: N.T.S.



### 'U' SHAPED CHANNEL

SCALE: N.T.S.



### GENERAL NOTES

- EDGES SHALL BE SHAPED WITH A 3/8" EDGING TOOL.
- CONSTRUCTION CONTROL JOINTS AT 6' O.C. MAX.
- EDGE OF ASPHALT PAVING TO BE 1/2" ABOVE EDGE OF CONCRETE (TYP).

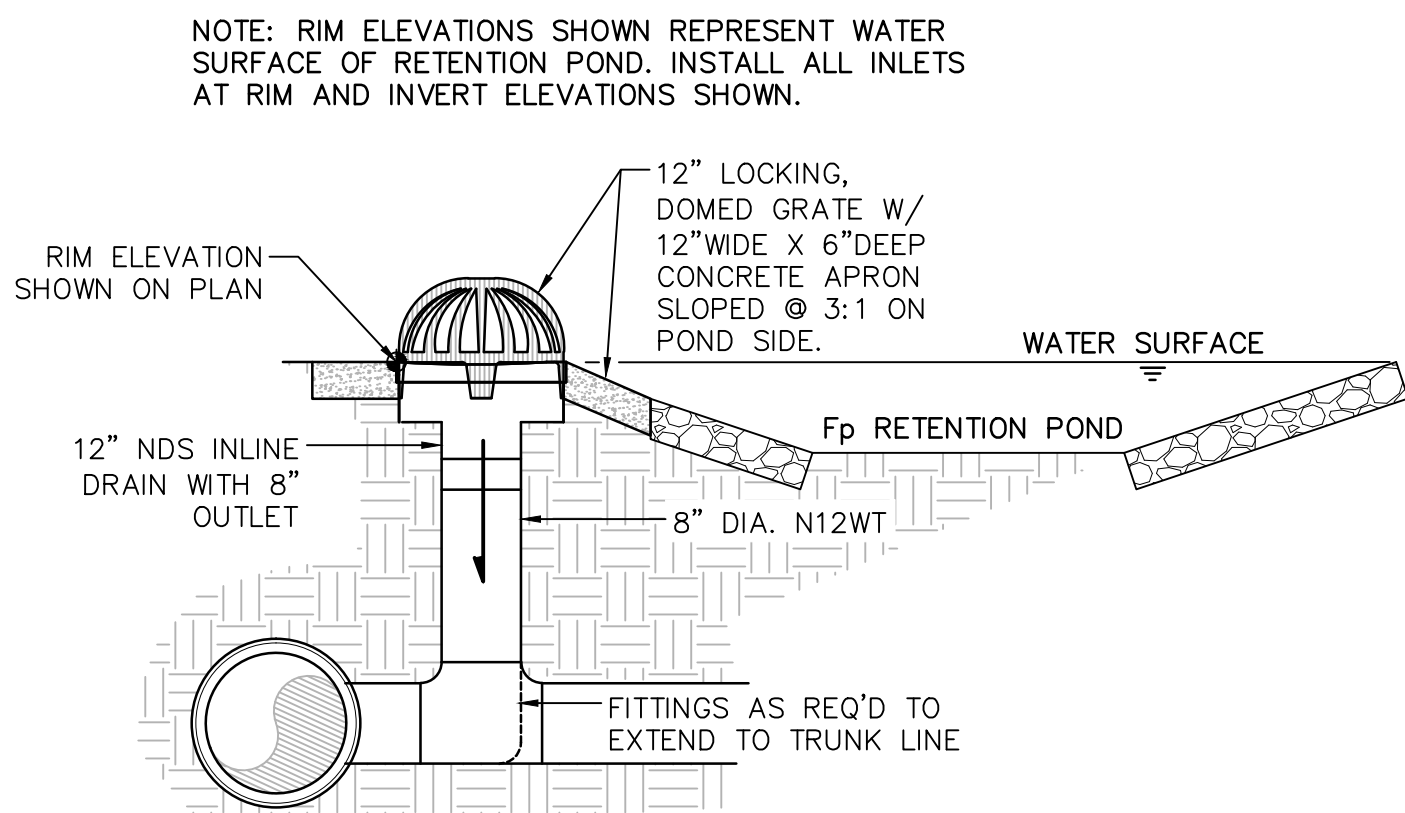
### CONCRETE ALLEY GUTTER

SCALE: N.T.S.

BASIN NO.	Fp1	DESCRIPTION	FIRST FLUSH BASIN Fp1
Area of basin flows =	13762	SF	0.32 Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			LAND TREATMENT
Weighted E =			A = 0%
Sub-basin Volume of Runoff (see formula above)			B = 10%
V <sub>500</sub> =			C = 10%
Sub-basin Peak Discharge Rate: (see formula above)			D = 80%
Q <sub>p</sub> =			FIRST FLUSH VOL.
			312 CF
BASIN NO.	Fp2	DESCRIPTION	FIRST FLUSH BASIN Fp2
Area of basin flows =	5939	SF	0.14 Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			LAND TREATMENT
Weighted E =			A = 0%
Sub-basin Volume of Runoff (see formula above)			B = 5%
V <sub>500</sub> =			C = 5%
Sub-basin Peak Discharge Rate: (see formula above)			D = 90%
Q <sub>p</sub> =			FIRST FLUSH VOL.
			151 CF
BASIN NO.	Fp3	DESCRIPTION	FIRST FLUSH BASIN Fp3
Area of basin flows =	6063	SF	0.14 Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			LAND TREATMENT
Weighted E =			A = 0%
Sub-basin Volume of Runoff (see formula above)			B = 20%
V <sub>500</sub> =			C = 20%
Sub-basin Peak Discharge Rate: (see formula above)			D = 60%
Q <sub>p</sub> =			FIRST FLUSH VOL.
			103 CF
BASIN NO.	Fp4	DESCRIPTION	FIRST FLUSH BASIN Fp4
Area of basin flows =	4327	SF	0.10 Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			LAND TREATMENT
Weighted E =			A = 0%
Sub-basin Volume of Runoff (see formula above)			B = 10%
V <sub>500</sub> =			C = 10%
Sub-basin Peak Discharge Rate: (see formula above)			D = 80%
Q <sub>p</sub> =			FIRST FLUSH VOL.
			98 CF

### BASIN CALCULATIONS

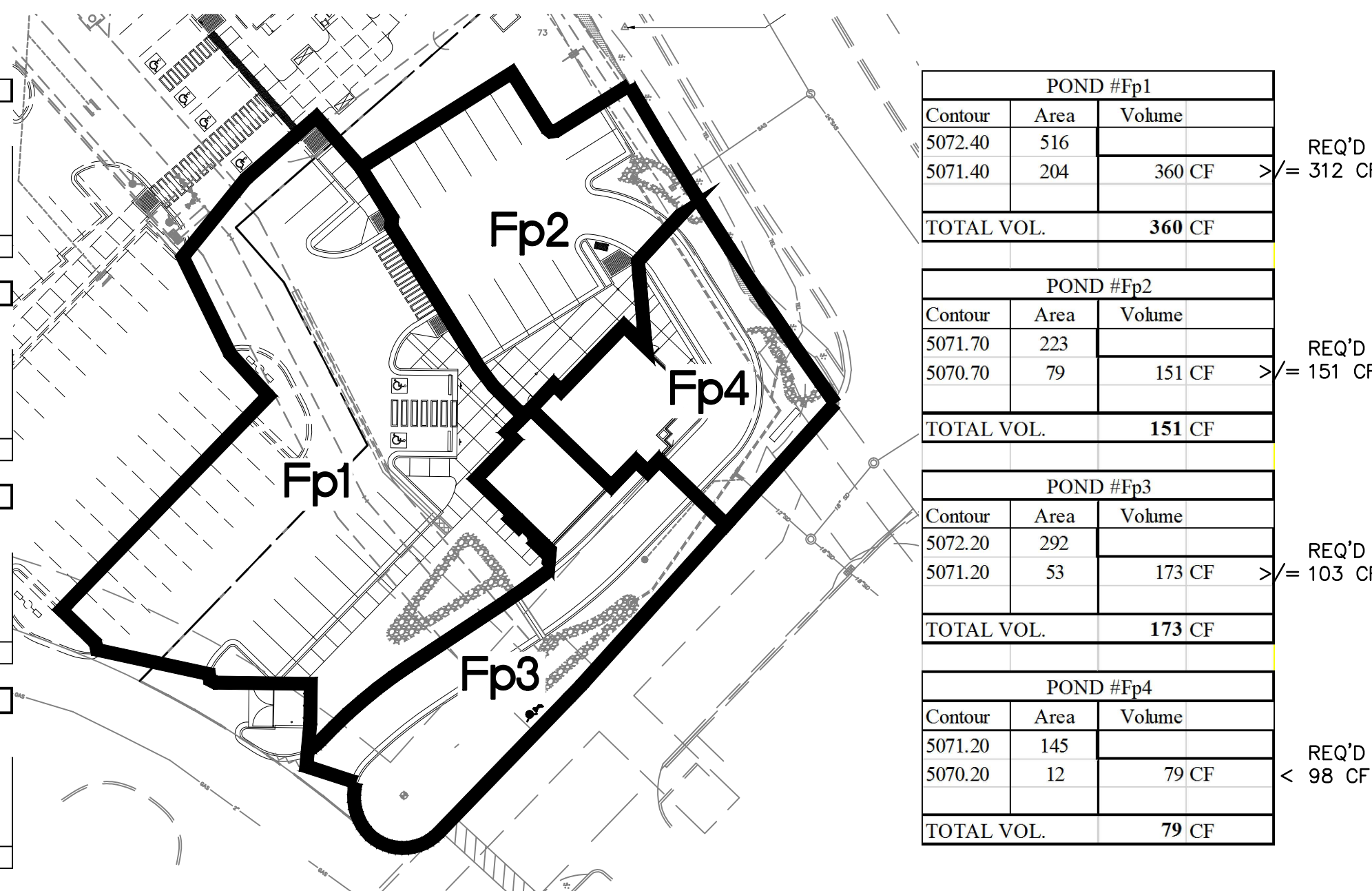
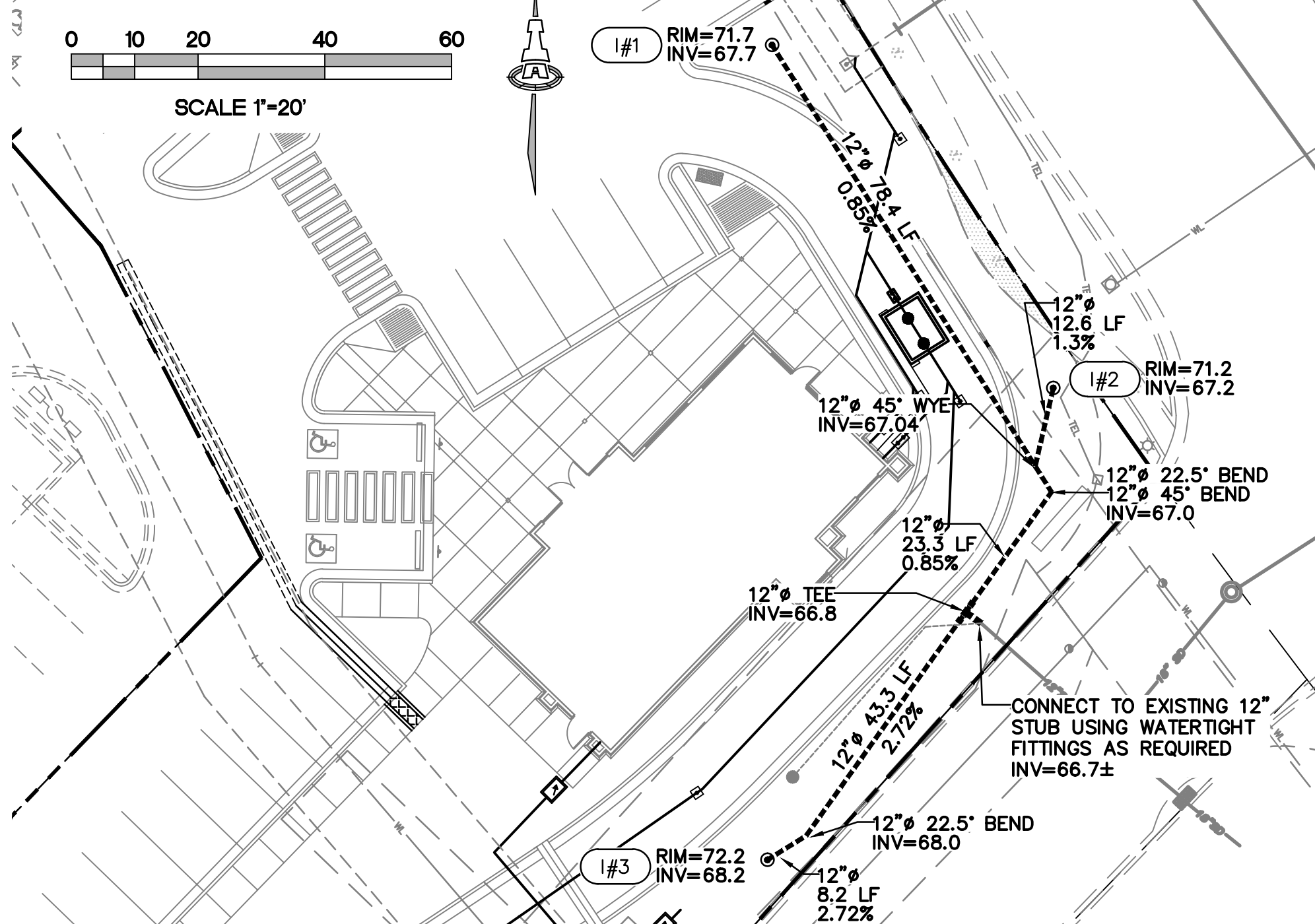
SCALE: 1"=40'



### INLINE DRAIN INLET

SCALE: N.T.S.

### STORM DRAIN DESIGN



POND #Fp1		
Contour	Area	Volume
5072.40	516	
5071.40	204	360 CF
TOTAL VOL.		360 CF

REQ'D  
>= 312 CF

POND #Fp2		
Contour	Area	Volume
5071.70	223	
5070.70	79	151 CF
TOTAL VOL.		151 CF

REQ'D  
>= 151 CF

POND #Fp3		
Contour	Area	Volume
5072.20	292	
5071.20	53	173 CF
TOTAL VOL.		173 CF

REQ'D  
>= 103 CF

POND #Fp4		
Contour	Area	Volume
5071.20	145	
5070.20	12	79 CF
TOTAL VOL.		79 CF

REQ'D  
< 98 CF

### STORM DRAIN LEGEND

- I#
- INLINE DRAIN WITH DOME GRATE
- ALL INLETS:
- 12" DIAMETER ADS INLINE DRAIN WITH 8" OUTLET
  - 12" LOCKING DOMED GRATE
  - 12" WIDE X 6" DEEP CONCRETE COLLAR

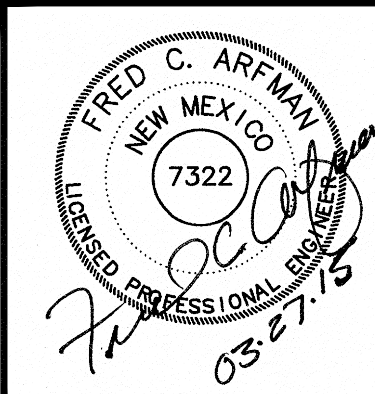
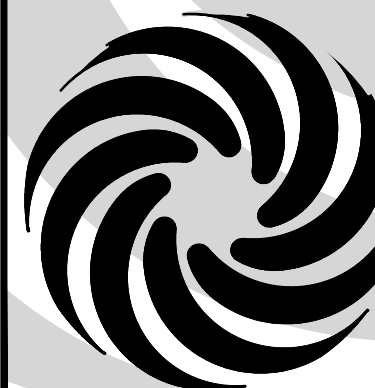
NOTE: RIM ELEVATIONS SHOWN REPRESENT WATER SURFACE OF FIRST FLUSH RETENTION POND. INSTALL ALL INLETS AT RIM AND INVERT ELEVATIONS SHOWN.

### GENERAL NOTES

- STORM DRAIN PIPES 12" DIA. SHALL BE EITHER ADS MEGA GREEN WT PIPE OR PVC SDR 35.
- STORM DRAIN FITTINGS SHALL BE WATERTIGHT.
- INSTALL ALL STORM DRAIN INLETS AND PIPE PER MANUFACTURER'S SPECIFICATIONS AND DETAILS.
- STORM DRAIN SYSTEM WILL REQUIRE REGULAR MAINTENANCE TO ENSURE PROPER FUNCTIONING DURING STORM EVENTS. ENGINEER RECOMMENDS THAT OWNER PUT IN PLACE INSPECTION AND MAINTENANCE REQUIREMENTS SCHEDULED TO OCCUR MONTHLY AND AFTER EACH STORM EVENT.
- ALL CONCRETE COLLARS PER COA STD DWG #2461.

**MODULUS ARCHITECTS**

220 COPPER AVE. N.W. SUITE 350  
ALBUQUERQUE, NEW MEXICO 87102  
PHONE (505) 338-1499 FAX (505) 338-1498



PROJECT TITLE	STARBUCKS XXX COOPS BYPASS NW ALBUQUERQUE, NEW MEXICO
PROJECT MANAGER	STEPHEN DUNBAR, AIA
DRAWN BY:	
JOB NO.	
SHEET TITLE	GRADING AND DRAINAGE DETAILS

DATE	3/26/15
SCALE	AS NOTED
SHEET	CG-501

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2060 CG-101.dwg Apr 21, 2015