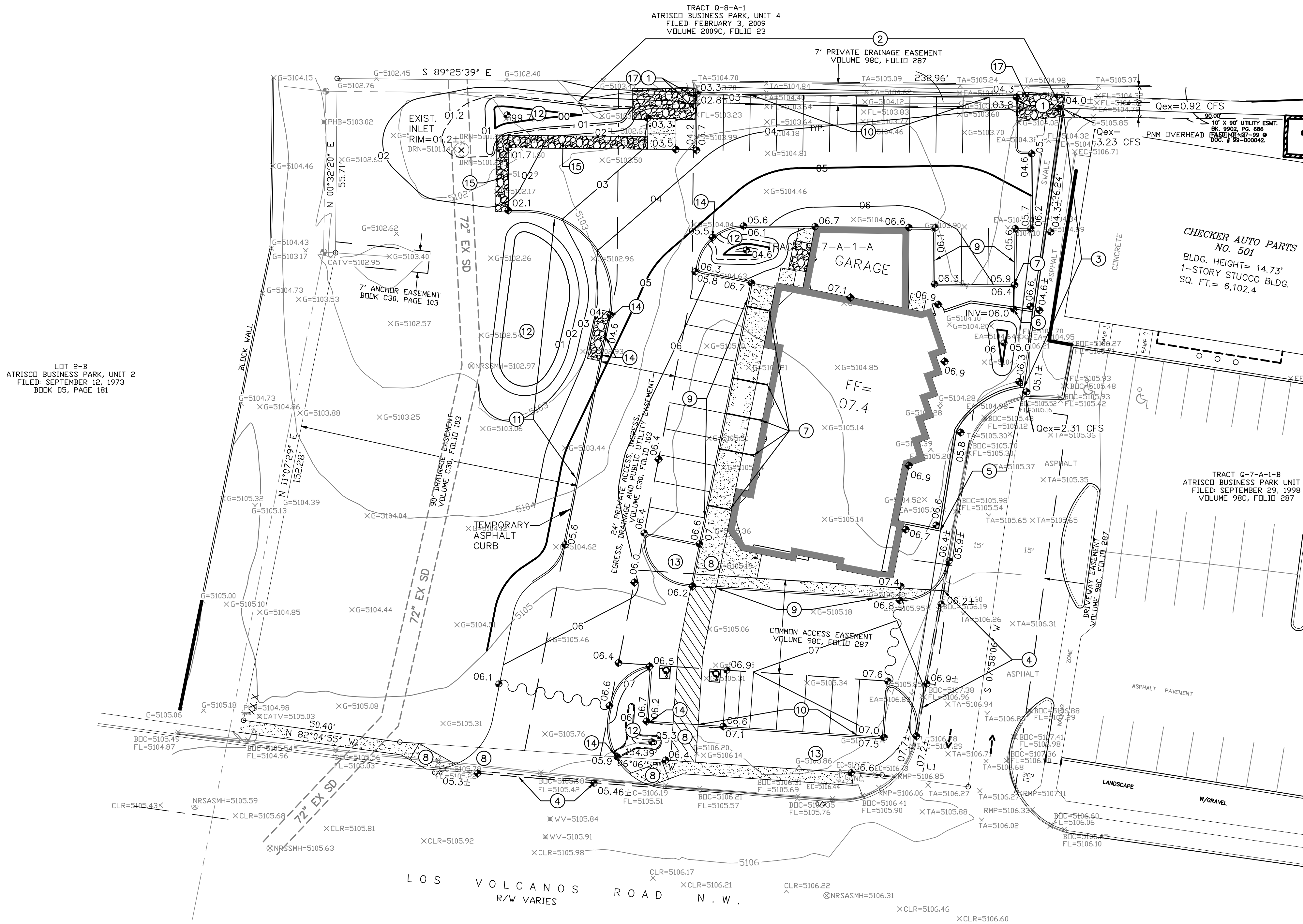
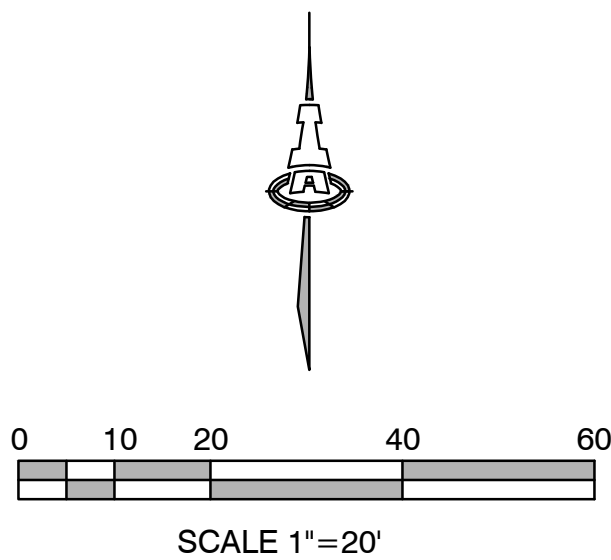


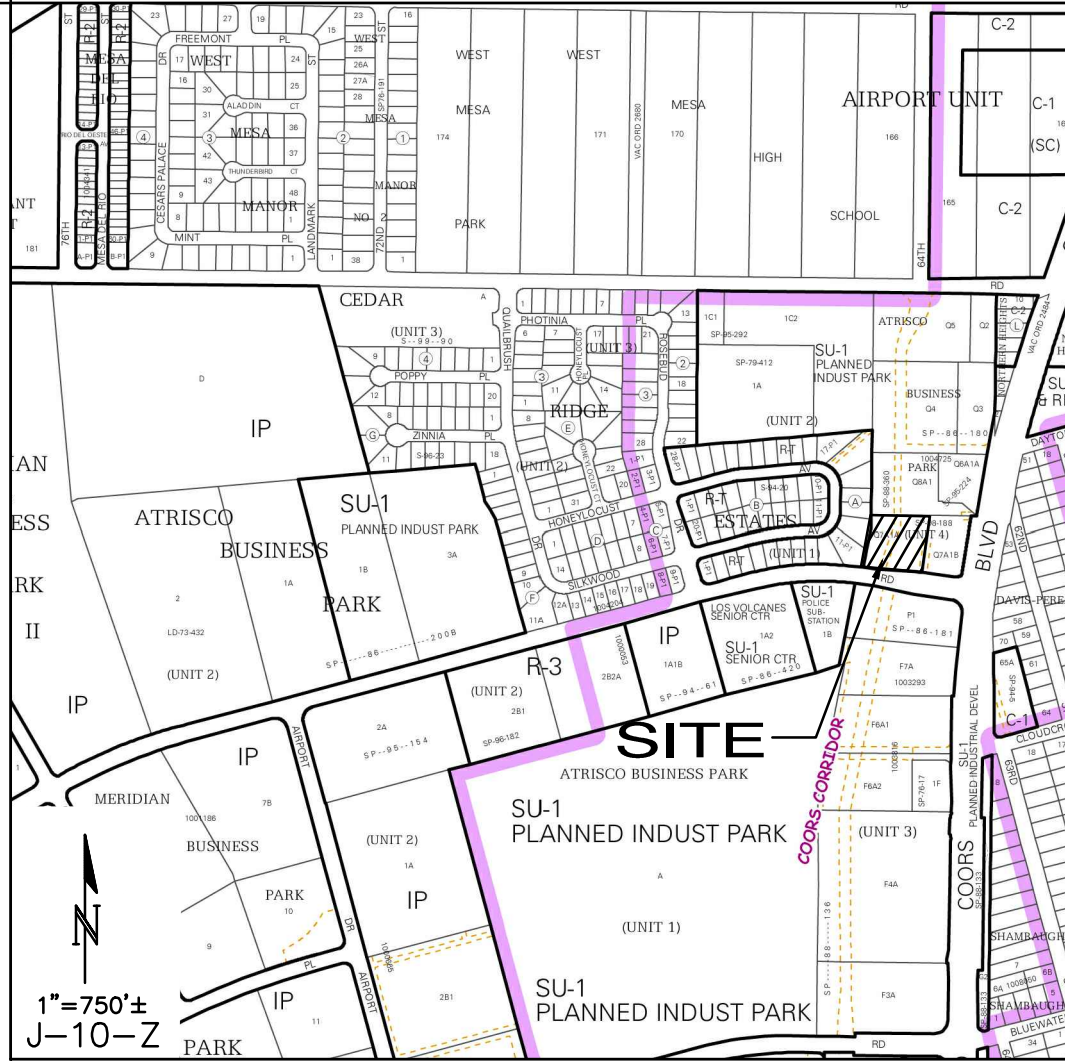
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## KEYED NOTES

- 2-2' WIDE CURB OPENINGS TO ALLOW OFFSITE FLOWS TO PASS THROUGH THE PARKING LOT.
- REMOVE & DISPOSE OF EXISTING ASPHALT RUNDOWN.
- BUILD PERIMETER WALL TO EDGE OF ASPHALT. CUT EXISTING ASPHALT AT PROPERTY LINE. REMOVE EXISTING RUNDOWN WHERE IT FALLS WITHIN THE PROPERTY. CONCRETE FILL & WATER PROOF BOTTOM FOOT OF PERIMETER WALL. SEAL JOINT BETWEEN ASPHALT AND WALL WITH A SILICONE SEALANT.  
  
FLOWS TO STAY ON ADJACENT PROPERTY UNTIL THEY DISCHARGE TO EXISTING DRAINAGE EASEMENT ON NORTH PROPERTY LINE. (PER ORIGINAL DESIGN OF CHECKER AUTO-COORS BLVD GRADING AND DRAINAGE PLAN BY GOODWIN & ASSOCIATES DATED 11/03/98.)
- MATCH EXISTING ASPHALT PAVING FOR A SMOOTH DRIVING TRANSITION.
- PROPOSED RETAINING WALL WITH OPENINGS IN VERTICAL GAPS ALONG THE ROW OF BLOCKS AT THE TOP EARTH GRADE. THE OPENINGS ALLOW OVERFLOW STORM WATER FROM THE COURTYARD TO ESCAPE.
- COURTYARD WALL DRAIN PER DETAIL ON SHEET CG-501.
- INSTALL 4" TRENCH DRAIN WITH SOLID GRATE PER DETAIL ON SHEET CG-501, AT 2% SLOPE. DISCHARGE ROOF DRAIN TO TRENCH DRAIN.
- HANDICAP RAMP PER ARCHITECTURAL DETAILS.
- TURN-DOWN EDGE OF SIDEWALK PER ARCHITECTURAL DETAILS.
- CURB & GUTTER PER ARCHITECTURAL DETAILS.
- CONSTRUCT TEMPORARY ASPHALT CURB TO DIRECT FLOWS TO POND.
- CONSTRUCT "FIRST FLUSH" PONDING AS SHOWN. BEGIN SLOPE 2' BEHIND CURB / 10' AWAY FROM BUILDING FOOTING. 3:1 SIDE SLOPES.
- DEPRESSED WATER HARVESTING AREAS WITHIN LANDSCAPING.
- 2' WIDE CURB CUT PER DETAIL ON SHEET CG-501.
- 4' WIDE, 12" THICK FRACTURED FACE ROCK (F.F. ROCK) EROSION PROTECTION AT THE EDGE OF THE EXISTING PAVEMENT.
- FRACTURED FACE ROCK PAD (MINIMUM 10'X20'X12" THICK) AT THE DISCHARGE POINT OF CURB CUTS. GRADE SO THAT TOP OF ROCK IS FLUSH WITH FLOWLINE.
- FRACTURED FACE ROCK PAD (MINIMUM 6'X15'X12" THICK) AT THE DISCHARGE POINT OF EXISTING ASPHALT RUNDOWN. GRADE SO THAT TOP OF ROCK IS FLUSH WITH FLOWLINE. CONTINUE ROCK UP TO NEW CURB CUTS.

## VICINITY MAP



## PROJECT DATA

**LEGAL DESCRIPTION:** TRACT Q-7-A-1-A, ATRISCO BUSINESS PARK

**SITE AREA:** 1.1 AC.

**FLOOD\_ZONE:** THIS SITE FALL ENTIRELY WITHIN ZONE 'X' PER FEMA FIRM MAP 35001C0329H DATED AUGUST 16, 2012.

**ENGINEER:** GENEVIEVE DONART  
ISAACSON & ARFMAN, P.A.  
128 MONROE ST NE, ABO. NM 87108  
PHONE: (505) 268-8828

**SURVEYOR:** HARRIS SURVEYING, INC.  
2412-D MONROE ST NE  
ALBUQUERQUE, NM 87110  
PHONE: (505) 889-8056

**BENCHMARK:** ACS "13-K10"  
ELEV=5146.61 (NAVD 1988)

**PROJECT CONDITIONS:** THE PROPOSED PROJECT IS AN XXXX SF MEDICAL OFFICE BUILDING ON THE EASTERN PORTION OF THE EXISTING UNDEVELOPED TRACT. TO THE EAST IS AN EXISTING AUTO PARTS STORE. OFFSITE FLOWS OF 3.2 CFS ENTER THE SITE ON THE NE CORNER, AND TRAVEL WEST IN AN ASPHALT RUNDOWN TO A DETENTION POND WITH A PUBLIC INLET AT THE BOTTOM.

THE NEW CONSTRUCTION WILL REMOVE THE EXISTING ASPHALT RUNDOWN, AND DIRECT OFFSITE FLOWS THROUGH THE PARKING LOT, THEN BACK OUT THE DETENTION POND. DEVELOPED FLOWS OF 3.6 CFS FROM THE NEW CONSTRUCTION WILL ALSO BE DIRECTED WEST TO THE EXISTING DETENTION POND. THE POND WILL BE AT LEAST 4,540 CU. FT. IN SIZE TO ACCOUNT FOR THE INCREASED DEVELOPED DISCHARGE.

THE FIRST FLUSH WILL BE ADDRESSED WITH WATER HARVESTING AREAS BY DIRECTING FLOWS TO ONE OF FOUR PONDS ONSITE WITH A TOTAL VOLUME OF 1,396 CF. (0.34"/12in/ft x 24,228 SF PD = 686 CF)

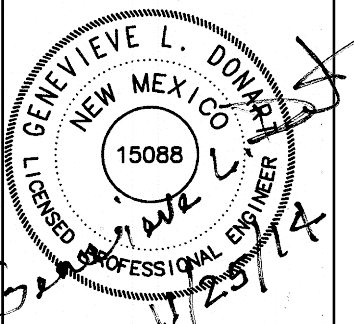
## LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- FLOW ARROW
- FF = 6881.0 FINISH FLOOR ELEVATION
- SIDEWALK TRENCH DRAIN
- INV=72.5 INVERT ELEVATION

TRAPNELL ORTHODONTICS  
GRADING & DRAINAGE PLAN

PROJECT #1378

REVISION DATE



**RBA**  
ARCHITECTURE  
PLANNING  
DESIGN  
1000 West Ave. SW  
Albuquerque, NM 87102  
www.rba-nm.com

DATE

09-24-2013

SHEET NUMBER

CG-101

**ISAACSON & ARFMAN, P.A.**  
Consulting Engineering Associates

128 Monroe Street N.E.  
Albuquerque, New Mexico 87108  
Ph. 505-268-8828 www.iacnll.com

2053 CG-101.dwg Nov 24, 2014



CALCULATIONS

CALCULATIONS: Trapnell Orthodontics :

Based on Drainage Design Criteria for City of Albuquerque  
Section 22.2, DPM, Vol 2, dated Jan., 1993

ON-SITE CALCULATIONS: 100-YEAR, 6-HOUR STORM

AREA OF SITE: 47504.996      SF      =      1.1 AC.

HISTORIC FLOWS:

Treatment      %

Area A      =      0      0%

Area B      =      47504.996      100%

Area C      =      0      0%

Area D      =      0      0%

TOTAL      =      47504.996      100%

DEVELOPED FLOWS:

Treatment      %

Area A      =      0      0%

Area B      =      19002      40%

Area C      =      4275      9%

Area D      =      24228      51%

TOTAL      =      47504.996      100%

EXCESS PRECIP:

Precip. Zon      1

E<sub>A</sub>      =      0.44

E<sub>B</sub>      =      0.67

E<sub>C</sub>      =      0.99

E<sub>D</sub>      =      1.97

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

Weighted E =       $\frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$

Historic      =      0.67 in.      Developed E      =      1.36 in.

On-Site Volume of Runoff: V<sub>360</sub> = E\*A / 12

Historic      =      2652 CF      Developed V      =      5391 CF

On-Site Peak Discharge Rate: Q<sub>p</sub> = Q<sub>pA</sub>A<sub>A</sub>+Q<sub>pB</sub>A<sub>B</sub>+Q<sub>pC</sub>A<sub>C</sub>+Q<sub>pD</sub>A<sub>D</sub> / 43,560

For Precipitation z 1

Q<sub>pA</sub>      =      1.29      Q<sub>pC</sub>      =      2.87

Q<sub>pB</sub>      =      2.03      Q<sub>pD</sub>      =      4.37

Historic      =      2.2 CFS      Developed Q      =      3.6 CFS

POND - WEST

Contour      Area      Volume

5102.00      1188

5101.00      806      997 CF

TOTAL VOL.      997 CF

POND - NEAR GARAGE

Contour      Area      Volume

5105.50      105

5105.00      36      35 CF

5104.60      0      7 CF

TOTAL VOL.      42 CF

POND - SW

Contour      Area      Volume

5105.90      69

5105.50      11.2      16 CF

5105.30      0      1 CF

TOTAL VOL.      17 CF

POND - NW

Contour      Area      Volume

5101.20      639

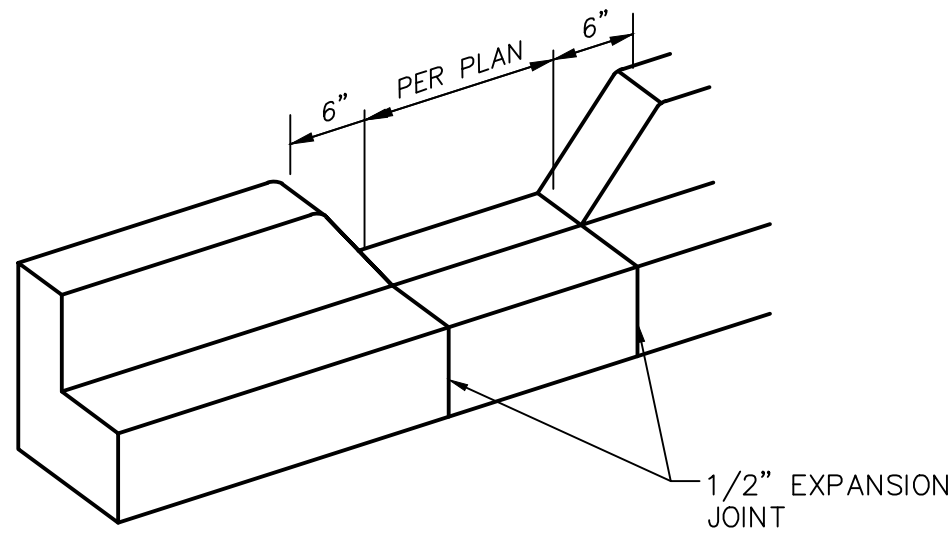
5101.00      370      101 CF

5100.00      83      227 CF

5099.70      0      12 CF

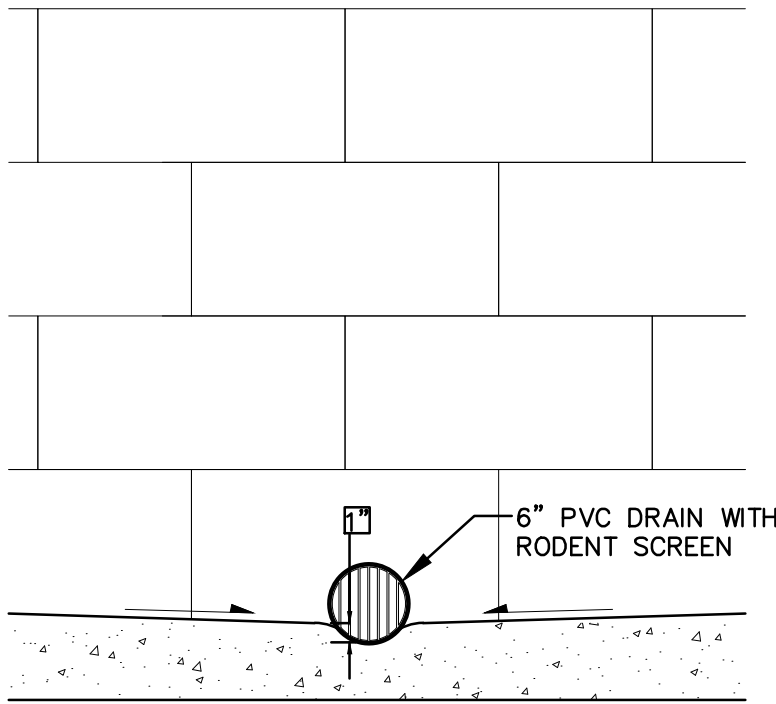
TOTAL VOL.      340 CF

TOTAL PONDING      1396 CF



GENERAL NOTES

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



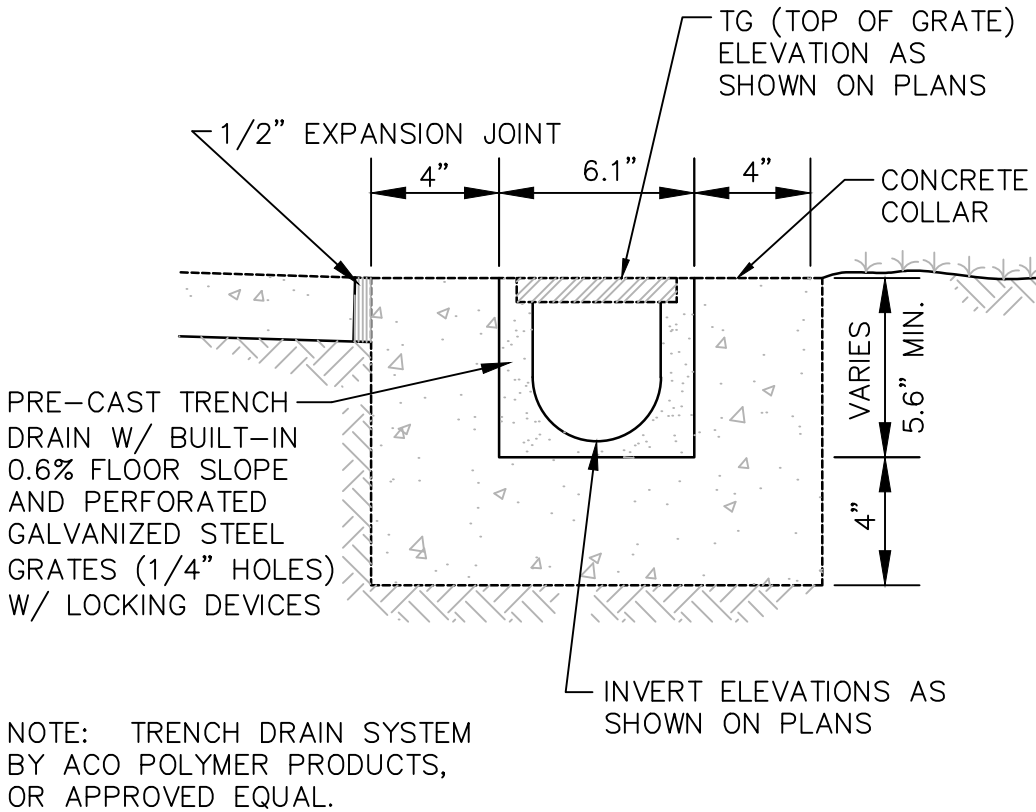
3 CURB OPENING

SCALE: N.T.S.

1 COURTYARD WALL DRAIN

PER KEYED NOTE #6

NTS



NOTE: TRENCH DRAIN SYSTEM BY ACO POLYMER PRODUCTS, OR APPROVED EQUAL.

2 TRENCH DRAIN THROUGH SIDEWALK

SCALE: N.T.S.

GENERAL NOTES

- A. ALL WORK DETAILED ON THESE PLANS AND PERFORMED UNDER THIS CONTRACT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT. WHERE APPLICABLE, CITY OF ALBUQUERQUE AND NMDOT STANDARDS APPLY
- 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. ALL SUBGRADE, OVEREXCAVATION, BACKFILL, AND FILL SHALL BE PLACED AND / OR COMPACTED PER THE GEOTECHNICAL REPORT AND CITY OF ALBUQUERQUE SPECIFICATIONS.
- D. 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.
- E. COORDINATE WORK WITH SITE PLAN, UTILITY PLAN, DEMOLITION PLAN, AND LANDSCAPE PLAN.
- F. 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 / ENGINEER AND VERIFY THE ARCHITECT / ENGINEER'S INTENT BEFORE PROCEEDING.
- G. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SAFETY.
- H. 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.
- I. CONTRACTOR SHALL OBTAIN ALL REQUIRED INSPECTIONS OF THE WORK. CONTRACTOR SHALL REGULARLY UPDATE OWNER AND ARCHITECT REGARDING THE STATUS OF THE INSPECTIONS.
- J. 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.
- K. 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.
- L. 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.
- M. 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.
- N. PAVEMENT GRADES IN MARKED HANDICAPPED PARKING AREAS SHALL NOT EXCEED 2.0% IN ANY DIRECTION. FOR ALL ACCESSIBLE ROUTES, MAXIMUM ALLOWABLE CROSS 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.
- O. ALL TRASH, DEBRIS, & SURFACE VEGETATION SHALL BE CLEARED AND LEGALLY DISPOSED OF OFFSITE.
- P. 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.
- Q. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER.
- R. MAXIMUM SLOPES SHALL BE 3:1. MINIMUM SLOPES SHALL BE 1% UNLESS OTHERWISE NOTED.
- S. 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.
- T. SOIL TESTING AND INSPECTION SERVICES DURING EARTHWORK OPERATIONS ARE REQUIRED. CONTRACTOR SHALL ALLOW TESTING LABS TO INSPECT 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.
- U. 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.
- V. THE ENVIRONMENTAL PROTECTION AGENCY (EPA) AND THE CITY OF ALBUQUERQUE REQUIRE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP), AN NPDES PERMIT, AND AN EROSION AND SEDIMENT CONTROL (ESC) PERMIT FOR PROJECTS WHERE CONSTRUCTION ACTIVITIES MEET THE EPA THRESHOLD. (SWPPP, NPDES PERMIT, AND ESC PLAN BY OTHERS.) A CITY-APPROVED ESC PERMIT MUST BE INCLUDED WITH THE CONTRACTOR'S SUBMITTAL FOR A ROUGH GRADING, GRADING, PAVING, BUILDING, OR WORK ORDER PERMIT.
- W. 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.
- X. 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.
- Y. 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).
- Z. ADJUST ANY RIMS OF EXISTING UTILITY FEATURES AS NECESSARY TO MATCH NEW GRADES. UTILITIES IN PAVED AREAS SHALL BE HS-25 TRAFFIC RATED.
- AA. 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.
- AB. WHERE GRADES BETWEEN NEW AND EXISTING ARE SHOWN AS 'MATCH' OR '±', TRANSITIONS SHALL BE SMOOTH.
- AC. NEW PAVEMENT SLOPE SHALL BE A MINIMUM OF 1.0% FOR CONCRETE AND 1.5% FOR ASPHALT UNLESS NOTED OTHERWISE.
- AD. ALL FRACTURED FACE ROCK (F.F. ROCK) TO BE 6" AVG. DIA. ANGULAR FACED ROCK PLACED OVER GEOTEX 501 NON-WOVEN GEOTEXTILE (O.E.). NOTE: PERMANENT TURF REINFORCEMENT MATERIAL (LANDLOK TRM 450 O.E.) MAY BE SUBSTITUTED AT ALL AREAS REFERENCING F.F. ROCK EROSION PROTECTION.
- AE. CONTRACTOR SHALL COMPLY WITH LOCAL REGULATIONS FOR RESEEDING OF DISTURBED AREAS.
- AF. POND DESIGN PARAMETERS (TOP OF POND, BOTTOM OF POND, SIZE OF ORIFICE, AREA OF POND, ETC.) TO BE STRICTLY ADHERED TO FOR CERTIFICATION PURPOSES. SEE GRADING PLAN FOR ADDITIONAL INFORMATION.
- AG. 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.
- AH. GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.
- AI. MEASURES REQUIRED FOR EROSION AND SEDIMENT CONTROL SHALL BE INCIDENTAL TO THE PROJECT COST.
- AJ. ALL SITE PREPARATION, GRADING OPERATIONS, FOUNDATION CONSTRUCTION, AND PAVEMENT INSTALLATION WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, WHICH WILL BE PROVIDED BY THE OWNER OR ARCHITECT. ALL OTHER WORK SHALL, UNLESS OTHERWISE NOTED IN THE PLANS, BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATION (FIRST PRIORITY) AND/OR NMDOT STANDARD SPECIFICATIONS FOR PUBLIC WORK (SECOND PRIORITY.)
- AK. EARTH SLOPES SHALL NOT EXCEED 3:1 UNLESS SHOWN OTHERWISE.
- AL. 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.
- AM. FIVE WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM (811) FOR LOCATION OF EXISTING UTILITIES.